Prevalence of Youth with Disabilities in the Juvenile Justice System

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Abstract

The U.S. juvenile justice system disproportionately incarcerates minority youth, youth from impoverished backgrounds, and youth with disabilities (YD). Youth who are involved with the juvenile justice system have a decreased chance of completing high school, lower work participation and earning rates, and are more likely to commit offenses as adults than peers who were not involved in juvenile justice. There is some evidence that these outcomes are magnified for YD. This project investigated whether YD were more likely to: end up in court, commit different offenses, and receive harsher sentences than youth without disabilities. In Study 1, extant datasets of administrative educational and court records were linked to investigate the prevalence of youth with disabilities in the juvenile court system, types of offenses committed, and county attorney's choice of degree of referral. Study 1 found that YD were overrepresented in the juvenile court system, but that when disability was categorized as a dichotomous variable, the finding was not robust to sex, race/ethnicity, and free or reduced-priced lunch (FRL status). When disability categories were disaggregated, youth with EBD, OHI, and SLD were overrepresented in the juvenile courts, while youth with ASD, DCD, physical or sensory impairments, and SLI were underrepresented. In addition, save for drug law violations, YD were more likely to be referred for non-status offenses (e.g., crimes against persons, property, public order) than their peers. Lastly, youth with disabilities as a group were referred to court with a higher degree of severity than their peers, a trend that held across most disability categories, and though attenuated, remained when the type of offense was included. Study 2 investigated the likelihood that YD would be convicted delinquent and whether they were incarcerated for longer periods of time than youth without disabilities. YD received delinquency convictions at rates similar to their peers. In contrast to previous literature, YD were not incarcerated for greater lengths of time than

their peers. These studies elucidate the relationship between youth with various disabilities and involvement in the juvenile justice system, an important first step in determining both risk and resiliency factors. Research implications are discussed.

Keywords: youth with disabilities, juvenile court, referral, sentencing, disproportionality

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CHAPTER 1

Introduction

The Office of Juvenile Justice and Delinquency Prevention's mission (OJJDP) is to provide "a nation where our children are healthy, educated, and free from violence. If they come into contact with the juvenile justice system, the contact should be rare, fair, and beneficial to them" (OJJDP, 2015). Unfortunately, research on youth involvement with the juvenile justice system has indicated that interaction is rarely beneficial and often detrimental to lifelong trajectories (Aizer & Doyle, 2010; Mendel, 2011). In addition, research on the intersection of youth who have received special education services and the juvenile justice system has demonstrated that contact is not rare (Quinn et al., 2005; Zhang et al., 2011), that these youth are not treated fairly (Morris & Thompson, 2008), and that involvement with the juvenile justice system results in worse outcomes for youth with disabilities compared to youth without disabilities who were involved with the juvenile justice system (Zhang et al., 2011). Prior research on youth with disabilities in juvenile justice has predominantly focused on incarcerated youthful offenders (for an exception, see Zhang et al., 2011). However, focusing on incarcerated youth only clarifies treatment of youth who committed more egregious offenses, and does not allow for analyses of lower level offenses youth commit that are less likely to be incarcerated (e.g., property offenses, breaking curfew, smoking or alcohol consumption), variations in the degree of offense the district attorney provides when referring the youth to court[1], or variation in court sentencing (e.g., dismissed, convicted, acquitted due to mental illness). The purpose of this project was to investigate the

[1] Minnesota Statute 260B.007 Subd. 16(4) states that in some cases, misdemeanor-level offenses committed by a juvenile can be categorized as a juvenile petty offense. Prosecuting attorneys may elect to refer a youth to court as a juvenile petty offender regardless of past misdemeanor-level offenses.

topography of offenses and contact that youth with education-related disabilities (YD) have with the juvenile justice system.

For the past century, the juvenile justice system has dealt with youthful offenders primarily through incarceration (Mendel, 2011). On any given day, approximately 68,800 youth are incarcerated within the United States (Hockenberry, 2014). For comparison, that is more youth than reside in small- to mid-sized cities such as Madison, Wisconsin; Des Moines, Iowa; Fargo, ND; or Duluth, MN. Though the rate of violent offenses by youth in the United States are similar to offense levels in other nations, the United States has an incarceration rate that is five-times higher than the next highest country (i.e., South Africa; Hazel, 2008). Thus, compared to other nations, contact with the juvenile justice system does not appear to be rare for youth in the United States.

A Fair System?: Disproportionality in Juvenile Justice

Youth who interact with the juvenile justice system are predominantly from minority and impoverished backgrounds (Hockenberry et al., 2013). State reports of minority contact indicate that minority youth are more likely to be arrested, detained, and referred to court than White youth (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2015). Minority youth are also less likely to receive a diversion agreement[2] (OJJDP, 2015), which can help them avoid incarceration. Concerns about disproportionate minority contact prompted the 1988 Juvenile Justice and Delinquency Prevention Act, which requires that states track and report the number of minority youth who come into contact with the juvenile justice system (Swayze & Buskovick, 2012). However, states are not required to track and report the number of youth with disabilities as part of this reporting system,

[2] Diversion agreements are a way to divert youth from the juvenile justice system in cases when involvement could do more harm than good, such as for petty offenses where involvement may be overly-stigmatizing and hinder rehabilitation.

leaving it largely up to researchers to identify the number of YD involved in the juvenile justice system.

Research on YD involvement in juvenile justice generally supports the notion that YD are overrepresented in the juvenile justice system (Bullis & Yovanoff, 2005; Cheely et al., 2012; Krezmien et al., 2008; Quinn et al., 2005), with prevalence estimates ranging from 33% (Quinn et al., 2005) to 58% of the incarcerated population (Bullis & Yovanoff, 2005). Compared to the most recent estimate of youth ages 3-21 receiving special education services in the education system (13%; National Center for Education Statistics [NCES], 2014), the prevalence of YD in the juvenile justice system is 2.5 to 4.5 times greater than their overall prevalence in the youth population. In addition, adolescents in the juvenile justice system are egregiously behind academically (e.g., more than one-third read below a 4th grade level; Leone, Meisel, & Drakeford, 2002).

Disproportionate contact in and of itself is not a concern if the outcomes of involvement are beneficial for youth. For instance, if involvement led to higher high school completion, civic involvement, reading and math ability, or even decreased future recidivism, being involved in the juvenile justice system could be seen as a beneficial intervention. However, research indicates that this is not the case.

A Beneficial System?: Outcomes of Involvement

Generally, literature on youthful offenders' involvement with the juvenile justice system has found negative to null effects. That is, the juvenile justice system involvement is associated with an increased risk that youth will face negative life outcomes such as not completing high school, or at best, does not negatively affect (but also does not improve) later outcomes. Specifically, involvement with the juvenile justice system is frequently associated with a higher likelihood of future delinquency (i.e., delinquent acts that are a

violation of law; Bernburg, Krohn, & Rivera, 2006; Mendel, 2011), delinquent peer association (Bernburg et al., 2006), and recidivism (i.e., repeated arrest or court appearance; Gatti, Tremblay, & Vitaro, 2009; Mendel, 2011; Spohn & Holleran, 2002). Mendel (2011), reporting on re-arrest data from all states in the U.S., found that 70 to 80 percent of youth were re-arrested within three years of their initial arrest, with 45 to 72 percent of youth found guilty for a new offense within the same time period. The elevated probability of committing additional crimes continues into adulthood (Aizer & Doyle, 2013; Gatti et al., 2009; Mendel, 2011). In addition, a longitudinal study of 870 youth from Rochester, New York found that those youth who were formally sanctioned by the juvenile justice system in some manner (e.g., arrested, referred to court, convicted, incarcerated) were more likely to associate with deviant peers and commit more self-reported delinquent acts in later adolescence (Bernburg et al., 2006). Conversely, one study found that the length of incarceration had no effect on whether a youth would reoffend as an adult (Loughran et al., 2009), which would indicate, at best, that incarceration is an ineffective intervention if the goal is to reduce future crime.

In addition to higher recidivism and delinquency rates, youth who are involved in the juvenile justice system typically have lower levels of educational attainment. Incarceration may decrease a youthful offender's probability of obtaining a high school diploma (Aizer & Doyle, 2013; Hjalmarsson, 2008). Though one study (Monk-Turner, 1989) found that incarceration did not have a significant effect on years of schooling, their sample did not adequately reflect the population of incarcerated individuals, as they relied on White males with full-time employment following incarceration.

Literature on the effect of future earning potential is also equivocal. Some research has found that future earnings are not affected by incarceration (Monk-Turner, 1989), while

other research indicates that being arrested at an earlier age (i.e., prior to age 24) significantly effects future earning potential (Kerley, Benson, Lee, & Cullen, 2004). Additional research found that youth who were incarcerated as juveniles experienced a five percent reduction in employment (equivalent to about three weeks per year) compared to non-incarcerated youth (Western & Beckett, 1999).

Overall, the research indicates that contact with the juvenile justice system is associated with increased recidivism rates, involvement with delinquent peers, decreased educational attainment, and creates a less stable and lower-paying working environment for youth. The research that has not supported this has generally found a null effect (e.g., Monk-Turner, 1989), indicating that the juvenile justice system is not beneficial to youthful offenders. The scarce research on YD offenders has found that official contact with the juvenile justice system is associated with higher recidivism rates than youth without a disability (Zhang et al., 2011) and decreased chances of completing high school (Bullis & Yovanoff, 2005; for an exception, see Aizer & Doyle, 2013).

Limitations of Past Research

YD are often not accounted for in analyses about youthful offending even though other pertinent sociodemographic youth information is typically included (e.g., race and ethnicity, parental income). This is problematic given that actions and language used by YD may be misinterpreted as dangerous or as a flight risk to those working with YD in the juvenile system (Leone, Zaremba, Chapin, & Isli, 1995), increasing their chances of detention prior to, or incarceration following, court appearance. Research on YD with juvenile records has typically not disaggregated results by specific disability categories when assessing youth offending and outcomes of contact (e.g., Aizer & Doyle, 2013; Gatti et al., 2009; Hjalmarsson, 2008; Zhang et al., 2011). This is problematic given that youth are identified

with a given disability following a comprehensive evaluation of their present level of functioning and need for services according to various disability categories. In addition, numerous studies have found that youth with specific disabilities are more likely to have contact with the juvenile justice system than youth with other disabling conditions. Youth with emotional behavioral disorder (Murphy, 1986; Quinn et al., 2005), specific learning disability (Casey & Keilitz, 1990; Quinn et al., 2005), and developmental cognitive delay (Casey & Keilitz, 1990; Nelson & Rutherford, 1989; Quinn et al., 2005) have all been found to be overrepresented respective of both youth with and without disabilities. In addition, there is some research that youth with autism spectrum disorder (ASD) are more likely to commit person-related offenses than peers without a disability (Cheely et al., 2011). Using a dichotomous disability variable assumes a level of homogeneity in youthful offending and treatment of YD in the juvenile system that is not supported by either logic or empirical literature, and may reduce statistical power given that youth with some disability categories may be (a) more likely to commit offenses that end up being referred to the juvenile justice system or (b) treated differentially from other peers (with or without disabilities) given manifestations of their disability.

Obtaining information on disability status has also been an issue in past research. Research has relied on survey counts from state departments of correction (e.g., Quinn et al., 2005), which may underestimate the number of youth contact because of inadequate disability identification methods in the juvenile justice system (Morris & Thompson, 2008). Literature that has involved individual disability levels has focused on youth with autism spectrum disorder (Cheely et al., 2012), learning disabilities (Keilitz & Dunivant, 1986), or emotional-behavioral disorders (Gage, Josephs, & Lunde, 2012), but has not disaggregated estimates of contact for youth with other disabilities (e.g., youth with speech language

impairments). In addition, past research has not investigated the relationship between offense type, offense level, and dispositional outcomes for YD compared to youth without a disability, even though these variables can impact youth outcomes including their court conviction and chances of incarceration.

Purpose

The literature on the intersection of YD and the juvenile justice system has been limited by the inability to accurately identify YD entering into the juvenile justice system. Accurately assessing disproportionality is an important first step that leads to future research identifying malleable predictive factors (Bollmer et al., 2007) and methods for correcting disparities in contact and sentencing.

This project consisted of two related studies. The purpose of Study 1 was to evaluate the topography of contact YD have with the juvenile justice system, and the types of offenses they commit. Specifically the research questions that guided Study 1 were:

1. What is the risk of court appearance for YD compared to youth without a disability? How does risk of court appearance vary by disability category compared to youth without a disability? It is hypothesized that YD will be overrepresented in the juvenile court system. It is also hypothesized that youth with emotional-behavioral disorders, specific learning disorders, and intellectual disabilities will be overrepresented, but that other categories may not be as prevalent, or even underrepresented in relation to their prevalence in the population.
2. Do YDs commit different types of offenses than youth without a disability? It was hypothesized that YD commit different types of offenses than youth without a disability.

3. Are YD more likely to receive a higher offense degree by the district attorney? It was hypothesized that YD were more likely to receive a higher offense degree than youth without a disability.

These research questions addressed several gaps in the literature, including reliance on juvenile justice professionals to identify disability status (e.g., Quinn et al., 2005), assessing whether YD commit different offenses than youth without a disability, and investigating the relationship between offense type and the level of offense a county attorney assigns to youth when referring them to court. This study added to the literature by estimating the crossover of YD and the juvenile justice system using linked educational and court records, allowing for more accurate identification and providing information about whether there is a need for additional monitoring. Additionally, identifying the types of offenses YD commit compared to typically developing peers may help professionals who work with YD tailor interventions to prevent these offenses. Lastly, assessing the offense and offense degree separately could inform whether YD are being referred to court with higher offense levels than youth without a disability for similar offenses.

The purpose of Study 2 was to explore what factors were related to youth dispositions and, when receiving a delinquent disposition that included incarceration, the length of time. Specifically, the research questions that guide Study 2 were:

1. Are YD more likely to receive a severe disposition than youth without a disability? It was hypothesized that YD would receive more severe dispositions than youth without a disability.
2. For youth who receive a delinquency conviction and are incarcerated, are YD more likely to receive a longer sentence length than youth without a disability? It was

hypothesized that YD would receive a longer sentence length than youth without a disability.

This study added to the literature by investigating the effect of salient factors on youth dispositions and sentencing by investigating whether there is a difference between YD and youth without a disability. Lastly, this research provided a more granular look at the data than many other studies that have either relied on just one subset of disability category (e.g., Cheely et al., 2012; Gage et al., 2012) or aggregated all of the categories (e.g., Aizer & Doyle, 2013; Zhang et al., 2011).

CHAPTER 2

STUDY 1

Prevalence of Youth with Education-related Disabilities in Juvenile Court

Abstract

The prevalence of youth with disabilities (YD) in the juvenile justice system has been a persistent concern for decades. Though researchers agree that YD are overrepresented in the juvenile justice system, prevalence estimates have ranged dramatically due to how disability is conceptualized and at what point in the juvenile justice system it is examined. This study addressed limitations of past research by linking educational disability categories, sociodemographic information (sex, race/ethnicity, free and reduced-priced lunch status), and academic performance of 230,760 students in Minnesota's educational record database with juvenile court records to investigate three related issues: Whether YD were overrepresented in the juvenile courts, whether they committed different offenses than their peers, and whether their offenses were petitioned to court with a higher degree of severity than their peers. Multinomial and logistic regression models were used to answer the research questions. YD overrepresentation in juvenile courts (RR=1.39) was not robust to sociodemographic controls (RR=1.07). However, analyses by individual disability category revealed that juvenile court representation varied by disability category. In addition, YD were more likely to commit non-status offenses than their peers and were more likely to be petitioned to court with a higher degree of offense even after controlling for the type of offense. Implications of the research are discussed.

Keywords: Special education, disproportionality, juvenile court,

Prevalence of Youth with Education-related Disabilities in Juvenile Court

Youth who are involved in the juvenile justice system are at risk for a number of pejorative life outcomes, including a decreased likelihood of obtaining a high school diploma (Aizer & Doyle, 2013; Hjalmarsson, 2008), decreased future monthly income (Kerley, Benson, Lee, & Cullen, 2004), and an increased risk of re-offending (Aizer & Doyle, 2013; Gatti et al., 2009; Di Tella & Schargrodsky, 2009). Youth who are incarcerated are also at risk for experiencing maltreatment and sexual abuse (Mendel, 2011) as evidenced by the recent closing of a private juvenile facility in Minnesota following sexual abuse allegations (Scheck, 2016). The juvenile justice system has disproportionately affected impoverished and minority youth, and more recently, there has been concern over the number of youth with education-related disabilities (YD) in the juvenile justice system. YD may not be identified to receive appropriate educational services (Morris & Thompson, 2008) and if identified, are at risk for not receiving services, as education can be denied during correctional punishment for safety reasons (Mendel, 2011; Morris & Thompson, 2008). Though minority contact is tracked due to federal legislation requirements, the various points of contact in the juvenile justice system (e.g., arrest, referral to court, conviction) do not track whether or not a youth has a disability. Previous research has indicated that YD are overrepresented in incarcerated populations (Quinn et al., 2005), but there is little research on the representation of YD in the juvenile courts, which youth come into contact with prior to being incarcerated.

The juvenile court system was developed under the auspices of *parens patriae* ("state as parent") to rehabilitate youth who had committed offenses. The focus of this separate system was to provide a separate court system from that used for adults that would ensure greater protections for youth, who were viewed as having diminished culpability. The first juvenile court was created in Cook County, Illinois in 1899, and by 1925 almost all of the

states had a juvenile court system (American Bar Association [ABA], 2007; Springer et al., 2011) intended to protect youth from negligent guardians and their own self-destructive behavior (ABA, 2007). For the past century, researchers and policy makers have been interested in what factors are related to youth involvement in the juvenile justice system, with studies investigating both individual, familial, and community-level factors related to youth involvement (Springer et al., 2011).

Due to an accumulation of evidence that the juvenile justice system is ineffective in changing youth behavior and may even negatively impact future life outcomes, factors related to juvenile justice involvement have been of interest to researchers and policy makers for decades. Through studies investigating involvement in the juvenile justice system, researchers discovered an overrepresentation of minority youth and those from impoverished backgrounds (Hockenberry et al., 2013; OJJDP, 2015). More recently, there has been concern about the prevalence of youth with disabilities in the juvenile justice system. The National Center on Disability ([NCD]; 2003) has called for research that establishes the true prevalence of youth with disabilities in the juvenile justice system at various stages of contact (e.g., arrest, court referral, incarceration). The purpose of this study was to determine the prevalence of YD in the juvenile court system by linking administrative educational and juvenile court records.

Disproportionate Minority Contact

The Juvenile Justice and Delinquency Prevention Act (JJDPA) codified concerns about disproportionate minority contact (DMC), due to a concerning amount of police contact in minority communities, by requiring states to report contact with minority youth at nine contact points in the juvenile justice system. States must report arrest, referral to county attorney's office, cases diverted by county attorney, cases involving incarceration prior to

sentencing, cases petitioned to juvenile court, cases resulting in conviction, cases resulting in probation, cases resulting incarceration, and cases transferred to the adult court system to OJJDP annually (Minnesota Department of Public Safety Office of Justice Programs [MNOJP], 2012).

Reports of DMC are tallied using relative risk indices (RR). The relative risk index is a comparison of the risk of an outcome for a group of interest compared to the risk of an outcome in a comparison group (typically, the majority population – White youth). The RR is calculated in two steps. First, the risk of an outcome is calculated for both the group of interest and the comparison group; for instance, a researcher may establish the risk of youth arrest for Black and White youth by dividing the number of youth who are Black and arrested in a given year by the prevalence of Black youth in the population, and doing the same for White youth. Once the risk for each group is calculated, the risk of the group of interest is divided by the risk of the comparison group (i.e., the risk of arrest for Black youth is divided by the risk of arrest for White youth). The result is the relative risk of Black youth arrest compared to White youth. Relative risk ratios greater than 1 indicate that a given group has a higher risk of an outcome than the referent group, while risk ratios less than one indicate a decreased risk compared to the referent. The relative risk ratios of over- and under-representation vary in the literature, with risk ratios below .5 or .75 considered to indicate underrepresentation, and risk ratios above 1.25 or 1.5 considered to constitute overrepresentation (Parrish, 2002).

Using the RR, national reports by the Office of Juvenile Justice and Delinquency Prevention (OJJDP, 2015) have indicated that minority youth are 1.70 times as likely to be arrested as their White peers, 1.10 times as likely to be referred to court by a county attorney, 1.30 times as likely to be detained prior to a court hearing (i.e., they are incarcerated prior to

a court verdict), only 0.70 times as likely to receive an agreement that would keep them out of the court system (i.e., a diversion agreement), and 1.20 times as likely to be incarcerated. These statistics vary according to a youth's race and ethnicity. For instance, Black youth are 2.30 times as likely to be arrested as White youth nationally (Puzzanchera & Hockenberry, 2015). Native American and Alaskan Native youth are 0.90 times as likely to be arrested, but 1.40 times more likely to be detained than White youth (Puzzanchera & Hockenberry, 2015). In addition, Asian, Hawaiian, and Pacific Islander youth are 0.30 times as likely to be arrested, 0.80 times as likely to be referred to court, and only 0.90 times as likely to be convicted as White youth; but also only 0.90 times as likely to receive a diversion from the juvenile court system, and are 1.10 times more likely to be detained or petitioned to court than White youth. Unfortunately, though the prevalence of youth with disabilities in the juvenile justice system has been a concern for some time, tracking these youth is more difficult than tracking contact with minority youth given the lack of reporting at multiple contact points. The only source of publicly available prevalence estimates is empirical literature, based on single-site facility counts (e.g., Leone, Zaremba, Chapin, & Iseli, 1995), self-reported measures of juvenile contact in educational datasets (e.g., Hjalmarsson, 2008) or linkages between county-level data and clinics or schools (e.g., Aizer & Doyle, 2013; Zhang et al., 2011), as the juvenile justice system only reports prevalence rates under the Child Find requirement of the Individuals Disabilities Education Act (IDEA, 2004).

Prevalence of YD in Juvenile Justice

According to The National Center on Education Statistics (NCES), approximately 0.3% of YD are incarcerated (2016). The prevalence across disability categories varies; youth with an emotional-behavioral disorder (EBD) and youth with deaf-blindness are the most likely to be reported as receiving services while incarcerated (1.7% and 0.7%, respectively;

NCES, 2016). Youth with other health impairments (OHI) and specific learning disabilities (SLD) are both equally prevalent (0.3%), followed by youth with an intellectual disability (0.2%; NCES, 2016). Approximately 0.1% of youth with a hearing impairment, visual impairment, orthopedic impairment, multiple disabilities, or traumatic brain injury are also incarcerated (NCES, 2016). Youth with autism spectrum disorder (ASD) and those with a speech or language impairment are the least likely to be incarcerated, with their NCES reported prevalence rate rounding to zero (NCES, 2016). However, these statistics only provide information on incarcerated youth, provide conflicting information with that reported in empirical literature, and depend on juvenile correction facilities to correctly identify youth.

Aside from national reports, a number of empirical studies have investigated the prevalence of incarcerated YD (e.g., Baltodano, Harris, & Rutherford, 2005; Rutherford, Bullis, Anderson, & Griller-Clark, 2002; Quinn et al., 2005) and post-incarceration outcomes (Cavendish, 2014). Studies that investigated YD court involvement included a dichotomous category for disability, and did not investigate differences across youth presenting with different disabilities (e.g., Aizer & Doyle, 2013; Zhang et al., 2013).

Estimates of the prevalence of youth with disabilities as defined under IDEA have varied in the literature across time and geographic location (Bullock & McArthur, 1994). Periodically, researchers have conducted surveys of state corrections to establish the prevalence of youth identified and receiving special education services. The most recent analysis (Quinn et al., 2005), based on corrections counts from 2000 found that 33.4% of youth in corrections had an identified disability according to heads of state departments of juvenile corrections. Past researchers reported a wide range of prevalence rates (0-85%) of youth in corrections identified with a disability across various states (Rutherford, Nelson, &

Wolford, 1985), with additional surveys finding prevalence rates of 23% (Bullock & McArthur, 1994) and greater than 42% (Morgan, 1979). Quinn and colleagues (2005) reported that 47.7% of those individuals who qualified for special education services had an emotional-behavioral disability (EBD), 38.6% had a specific learning disability (SLD), 9.7% had an intellectual disability (ID), 2.9% had qualified under other health impairment (OHI), and 0.8% had multiple disabilities. Authors of a meta-analysis completed in 1990 estimated that 12.6% of youth in corrections had ID, and 35.6% qualified under SLD (Casey & Keilitz, 1990). Earlier contact with the juvenile justice system for YD, such as juvenile court involvement, has received less attention.

Studies based on the South Carolina Department of Juvenile Justice (Barrett et al., 2010; Zhang et al., 2011) found that 9% of youth in the juvenile court system had a disability. However, one of these studies did not discuss identification (Barrett et al., 2010), and the other was based on caseworkers' records of parent report (Zhang et al., 2011). Although Aizer and Doyle (2013) included special education in their study based on information from Chicago Public Schools, they did not directly calculate YD prevalence in the juvenile court system; based on counts in their analyses (Table 6, p. 40; 2013), approximately 23.9% of youth in the juvenile court system had a disability. The lack of information about YD at various points in the juvenile justice system is concerning given that the overrepresentation of this group has been a persistent concern for decades. Despite the lack of empirical evidence, several theories have attempted to explain the overrepresentation of YD in the juvenile justice system.

Theories of YD Overrepresentation

There are three primary theories of why YD may be overrepresented in the juvenile court system: school failure, susceptibility, and differential treatment (Fink, 1990; Keilitz &

Dunivant, 1987; Quinn et al., 2005). The school failure theory states that having a disability leads to school failure either directly or through behavioral and emotional issues that affect educational outcomes, leading to dropping out of school and delinquency (Post, 1981). Susceptibility theory posits that due to cognitive and personality differences that predispose them to committing delinquent acts at a higher rate than youth without a disability, such as poor impulse control, suggestibility and irritability, and a general inability to anticipate consequences of their actions (Quinn et al., 2005). The differential treatment theory holds that YD commit delinquent acts with the same frequency and intensity as youth without a disability, but that the juvenile justice system responds to them differently than to youth without a disability (Keilitz & Dunivant, 1987). The differential treatment theory suggests three points of differential processing: differential arrest and referral, differential convictions, and differential dispositions (Keilitz & Dunivant, 1987). Specifically, YD are thought to be less likely to conceal their delinquent activity, therefore being arrested and referred to court more often, are more likely to be convicted than youth without a disability, and more likely to receive a harsher disposition than youth without a disability (Keilitz & Dunivant, 1987; NCD, 2003).

Few studies have investigated these theories in any systematic way (NCD, 2003). Studies that have investigated various theories have found mixed support for some theories and a lack of support for others (NCD, 2003). However, support for the differential treatment theory appears to be greater than for either the school failure or susceptibility theories (Brier, 1989; Keilitz & Dunivant, 1986; NCD, 2003).

Empirical Literature on Factors Related to Youthful Offending

A number of studies have investigated factors predictive of later youthful offending (e.g., Dembo et al., 2000; Kashani, Jones, Bumby, & Thomas, 1999; Shelley-Tremblay,

O'Brien, & Langhinrichsen-Rohling, 2007). A number of individual, familial, and educational factors related to offending are addressed below.

Youth who have experienced lead exposure during infancy (Dietrich, Ris, Succop, Berger & Bornschein, 2001), had behavioral issues and related aggressiveness as a child and adolescent, had poor reading skills, or low verbal intelligence as a child, are more likely to become involved in the juvenile justice system (Kashani et al., 1999; Shelley-Tremblay et al., 2007; Quinn et al., 2005). Experiencing parental hostility, physical punishment and abuse from parents (Hoeve et al., 2009; Dembo et al., 2000), or sexual abuse (Cottle et al., 2001) is also related to youthful offending.

Additionally, youth who have issues in reading or have been retained at some point during their academic career are more likely to become involved in the juvenile justice system (Cottle, Lee, & Heilbrun, 2001; Foley, 2001; Leone, Zaremba, Chapin, & Iseli, 1995). Prior school discipline, including suspension and expulsion (NCD, 2003), as well as other school-related problem behaviors and absences are also related to increases in youthful offending (Foley, 2001).

Issues in Past Research

Clear prevalence estimates of the amount of YD in the juvenile justice system at various contact points have remained elusive (Rutherford, et al., 2002) and accurate estimates of delinquent offenses committed by YD are rare (NCD, 2003). Assessing the prevalence of youthful offenders with a disability is complicated by a number of factors, including varying definitions of disability across federal, state, and professional disciplines, the categorization of disability according to categorical or functional means, the point of contact in the juvenile justice system prevalence is measured at (e.g., self-reported delinquency, arrest, court, incarceration; NCD, 2003) and what system is diagnosing the youth (e.g., school or juvenile

justice; Morris & Thompson, 2008; Rutherford et al., 2002). In addition, literature that has investigated the overlap of YD and juvenile court systems has included special education receipt as a dichotomous variable (e.g., Aizer & Doyle, 2013; Barrett et al., 2010; Zhang et al., 2011), thereby implicitly assuming that all youth with a disability are homogenous.

Issues in Defining Disability

Capturing the overlap of disability and the juvenile justice system has been complicated by differences in the diagnostic criteria used to establish disability. For instance, some studies use the *Diagnostic and Statistical Manual* to capture juvenile justice involvement of youth with disabilities (e.g., Cheely et al., 2012), others have relied on juvenile justice system employees, such as caseworkers, to diagnose youth with disabilities (e.g., Zhang et al., 2011), while others use receipt of special education services (e.g., Aizer & Doyle, 2013). In addition, the categories used by states to capture youth under the Individuals with Disabilities Education Act (IDEA) vary from state to state, complicating comparisons across states (NCD, 2003).

An additional issue with capturing disability for youth involved with the juvenile justice system is that correctional facilities use different methods for capturing disability than the education system (e.g., educational records, youth or parent report). Few states systematically screen and assess youth entering the juvenile justice system (Towberman, 1992) and even if youth are assessed, they may be misclassified or not identified due to a lack of appropriate special education services (Morris & Thompson, 2008; Rutherford et al., 2002). Lastly, youth who end up in the juvenile justice system are also more likely to be truant than non-involved youth (Loeber, 1990) and may have missed an opportunity to be appropriately identified as having a disability prior to involvement in the juvenile justice system (Rutherford et al., 2002).

Issues in Point of Contact

Data reported by NCES and past research has focused on YD who are in correctional settings. Setting aside the issue of how these youth were identified as having a disability, the problem with studying youth in juvenile corrections is that incarcerated youth only represent a small percentage of all youthful offenders (NCD, 2003; Rutherford et al., 2002), and may only capture chronic offenders or those who commit more egregious offenses (NCD, 2003). In addition, investigating prevalence in correctional facilities does not allow for researchers to identify whether disproportionate representation arises from a decision-making process further upstream (e.g., differential police arrest, processing, court referral, or sentencing).

Purpose

The purpose of this study was to evaluate the topography of youth with education-related disabilities in the juvenile justice court system. Analyses included overall contact (i.e., involvement in the juvenile courts), type of offenses youth committed, and the level of offense youth with disabilities received compared to youth without disabilities. The analyses for this study were guided by the following questions:

1. What is the risk of court appearance for YD compared to youth without a disability? How does risk of court appearance vary by disability category compared to youth without a disability? It was hypothesized that YD will be overrepresented in the juvenile court system. It was also hypothesized that youth with emotional-behavioral disorders, specific learning disorders, and intellectual disabilities will be overrepresented, but that other categories would not be as prevalent, or even underrepresented in relation to their prevalence in the population.

2. Do YDs commit different types of offenses than youth without a disability? It was hypothesized that YD commit different types of offenses than youth without a disability.
3. Are YD more likely to receive a higher degree of offense by the district attorney? It was hypothesized that YD are more likely to receive a higher offense degree than youth without a disability.

These research questions addressed several gaps in the literature, including reliance on juvenile justice professionals to identify disability status (e.g., Quinn et al., 2005), assessing whether YD commit different offenses than youth without a disability, and investigating the relationship between offense type and the level of offense a county attorney assigns to youth when referring them to court. This study added to the literature by estimating the crossover of YD and the juvenile justice system using linked educational and court records, allowing for more accurate identification and providing information about whether there is a need for additional monitoring. Additionally, identifying the types of offenses YD commit compared to typically developing peers may help professionals who work with YD tailor interventions to prevent these offenses. Lastly, assessing the offense and offense degree separately could help inform whether YD are being referred to court with higher offense levels than youth without a disability.

Method

Data Sources and Procedures

The datasets used for this study were provided by the Minnesota Linking Information for Kids (MinnLInK) project housed within the Center for Advanced Studies in Child Welfare at the University of Minnesota. The purpose of the MinnLInK project is to examine the impact of policy, practice, and programs on children in Minnesota. The data for

this study came from two MinnLInK datasets: the Minnesota Automated Reporting Student System (MARSS), and the State Court Administrator's Office (SCAO). Both datasets are administrative records that were collected by the Minnesota Department of Education and state courts, respectively.

Minnesota Automated Reporting Student System. The Minnesota Department of Education dataset provided information on youth from the 2008-09 to 2012-13 academic years. The dataset included academic records, special education status, sex, race and ethnicity, and grade level.

In the majority of cases, the school district or school that was responsible for mandatory testing, transcripts, child find, free and appropriate public education (FAPE), and for a youth's Individualized Education Plan (IEP), was responsible for recording youth data in MARSS. When youth attended Supplemental Online Learning, a state-approved alternative program, or were concurrently enrolled in multiple schools within a district, both locations provided information on the youth in MARSS. In all other cases (e.g., a youth received day treatment for an extended period of time) the placement that was the main instructional provider (i.e., they provided all or the majority of the youth's educational time) was responsible for recording youth information.

State Court Administrators Offices. The SCAO dataset included court cases from 2008 to 2012. State court administrative clerks recorded all the data following a youth's court appearance and court disposal of the case. Youth who appeared in court and whose cases were convicted at the time of this study were included in the sample.

Matching. Data matching was completed using LinkPlus, a probabilistic matching program developed by the Centers for Disease Control (CDC). Data were matched probabilistically based on the participant's full name and date of birth. Matches below 10%

probability were dropped (i.e., not reviewed). Following the probabilistic matching, first name, middle initial, surname, and birthdate were hand-matched by researchers at MinnLInK on a an individual basis to ensure the highest number of true matches. Youth were categorized as a true match in the following conditions: (1) their first name, middle initial, surname, and birthdate were all matches; (2) their first name, surname, and birthdate matched, but their middle initial did not match or was missing; (3) their middle initial, surname, and birthdate matched, but their first name had mismatched spelling or omitted some letters; or (4) their first name, middle initial, and birthdate matched, but their surname had mismatched spelling or omitted letters. Any other variations of this (including errors in the birthdate) were considered a non-match. Using this method, 99.4% of youth who had name and date combinations that appeared in both systems were valid matches (i.e., the names and dates of birth indicated they were the same person).

Analytic Sample

As shown in Table 1, the analytic sample for this study was constrained to youth who had complete information in the educational (MARSS) dataset and, for those involved, complete information on the variables of interest from the juvenile court system (SCAO). A cohort of 230,760 youth in fifth through eighth grade were taken from 2008-09 and followed through 2012, when the oldest youth in the cohort would be completing the twelfth grade. Of these youth, 41,812 were involved in the juvenile court system at least one time. Youth offenses were restricted to the most egregious offense the youth was referred to court for during their first court appearance.

The initial MARSS sample had 230,760 youth in fourth to eighth grade in 2008-09, with 43,418 youth who had been involved in the juvenile justice court system at least one time. Youth who were in court for extradition cases (i.e., they committed an offense in

another state) were excluded from the court dataset, reducing the amount of youth involved in the court system to 41,812. Analyses that assessed risk included all 230,760 youth, while analyses that investigated offenses and offense level were restricted to youth who were involved with the juvenile justice dataset.

Table 1

Demographic Information for All Youth (N=230,760) And Court Involved Youth (N=41,812)

	Full Sample		Court Involved Youth	
Variable	N	%	N	%
Gender				
Male	118,201	0.51	26,766	0.64
Female	112,559	0.49	15,046	0.36
Race/Ethnicity				
White	178,885	0.82	28,293	0.70
Black	20,025	0.09	6,895	0.17
Hispanic	13,254	0.06	3,221	0.08
Native American	5,042	0.02	2,057	0.05
Asian American	13,554	0.06	1,346	0.03
Free-Reduced Priced Lunch				
Receipt	98,676	0.43	26,604	0.64
No Receipt	132,084	0.57	15,208	0.36
Special Education/504				
No Receipt	186,989	0.81	31,561	0.75
Receipt	43,771	0.19	10,251	0.25
ASD	3,904	0.05	329	0.02
EBD	6,520	0.08	3,136	0.16
SLD	12,100	0.15	3,125	0.16
SLI	4,615	0.06	323	0.02
PhysSens	1,985	0.02	168	0.01
OHI	7,470	0.09	2,153	0.11
DCD	2,609	0.03	338	0.02
Section 504	4,568	0.06	678	0.03

Note. PhysSens = Physical or sensory impairment. Percentages reflect the percent of youth within each group. For instance, 8% of youth in the full sample were youth with EBD, while 16% of court involved youth were youth with EBD.

Variables

Youth with education-related disabilities (YD). Youth who were not involved in the juvenile justice system were categorized as having an education-related disability if they had qualified for and received special education services during the school year, had qualified but did not receive services (e.g., qualified at the end of a school year and scheduled for receipt the following year), were qualified but received services through another public agency, or were captured by the primary disability variable as having a Section 504 plan at any point during the four-year data collection window. For youth who were involved in the juvenile justice system, the same decision rules were applied, except that their disability status was taken from the school year immediately prior to their court involvement. Youth were not categorized as having a disability if they were never evaluated, were evaluated but did not qualify, were evaluated but parents denied services, or received early intervening services.

Primary disability. The primary disability indicates what category best captured an adolescent's functional and academic skill needs as determined by the special education team at the school the youth attended. Secondary disability categories are not included in MARSS, therefore each disability category is exclusive (i.e., youth could only be in one disability category). If a youth had a primary disability category change in the dataset, the most recent category prior to court involvement was used. Some disability categories were aggregated to account for small numbers of those categories in the juvenile court system, resulting in the following categories: autism spectrum disorder (ASD), developmental cognitive delay (DCD), emotional-behavioral disability (EBD), specific learning disability (SLD), sensory and physical impairments (Sens-Phys; i.e., physically impaired, deaf or hard of hearing, visually impaired, deaf-blind, traumatic brain injury, and severely multiply-impaired), speech-language

impairments (SLI), and other health impairments (OHI; which includes youth with attention-deficit hyperactive disorder).

Sociodemographic variables. Race and ethnicity were collected through several avenues: Parent or guardian identification; youth identification when parent or guardian information was not an option; or sight counts administered by a principal or designated staff member when parent, guardian, and youth identification methods were not available. Youth were categorized as Native American, Asian American, Hispanic, Black, not of Hispanic origin, or White, not of Hispanic origin. For the analyses in this study, non-Hispanic White youth were used as the referent group. Youth sex was coded dichotomously, with males as the referent group. Lastly, free or reduced-priced lunch (FRL) was used as a proxy for parental income. Youth who had received FRL at any point during their academic career were recorded in the FRL category, with non-receipt as the referent.

Offense. Cheely and colleagues (2012) coding scheme was used to categorize the original 6,908 offenses (i.e., what the youth did that was lawfully wrong) into exclusive categories. Offenses were coded as crimes against person (e.g., homicide, manslaughter, domestic assault, other assault, and fighting or brawling, violating a no-contact order, robbery, sexual offenses, stalking, harassing, terrorizing), crimes against property (e.g., theft, burglary, vandalism, trespassing), drug law violations (e.g., controlled substances, driving under the influence), crimes against public order (e.g., Department of Natural Resources offenses, obstruction of justice, social hosting, public nuisance, weapons offenses), status offenses (e.g., curfew, truancy, smoking or possessing nicotine or tobacco products, alcohol offenses not including driving under the influence), other offenses (e.g., traffic offenses), and law violations that occurred at school (e.g., drug, weapons, and person offenses that occurred on school property). To control for multiple offenses and multiple-court

appearances, only the most egregious offense from a youth's first court appearance was used in analyses.

Offense Degree. County attorneys select the degree (or severity) of offense within state guidelines for a youth offense. In Minnesota, the available degrees are: juvenile petty offenses[3] (e.g., underage drinking, local ordinance violations, and some offenses that are categorized as misdemeanors if committed by adults), juvenile traffic offenses (e.g., any violation of local traffic laws, either on the road or a waterway – speeding, running red lights), petty misdemeanors (e.g., traffic and other offenses that have a fine greater than $300), misdemeanors (e.g., assault, driving under the influence), gross misdemeanors (assaulting a police officer, stalking, and crimes punishable with up to one year in prison or $1,000 fine), and felony level offenses (e.g., manslaughter). Reduced levels were constructed for two reasons: significant overlap between committed offenses and offense degree[4] (e.g., a dog off leash could be captured as a petty offense or misdemeanor), and preliminary analyses demonstrated that there were not differences between rates of status offenses or any misdemeanor-level offenses. Therefore, a dichotomous variable was created with the felony-level offense degree as the indicated outcome, and all other offense levels as the referent.

Analyses

[3] Minnesota's juvenile petty offense category is more inclusive than other states' status offense category, which typically only includes offenses that are illegal due to the age of the offender (e.g., curfew, using tobacco). Minnesota's petty offenses include offenses that are illegal because of the youth's age, but also includes alcohol, controlled substance, and offenses that may be considered a misdemeanor if committed by an adult (Minnesota Office of Public Safety, Office of Justice Programs [OJP], 2012).

[4] Minnesota law (260B.007, §16(4), 2015) allows prosecuting attorneys to categorize misdemeanor-level offenses committed by a juvenile to be counted as a juvenile petty offense in certain situations.

A series of logistic and multinomial logistic regression models were used to address the research questions. Logistic regression models were used to assess the first research question about risk of court appearance for YD compared to youth without a disability.

$$Court_i = \alpha + \beta_1 X_1 + \ldots \beta_n X_n + \epsilon \quad (1)$$

As shown in Equation 1, the intercept reflects the log-odds that youth without a disability (the referent group) were referred to court, β_1 represents the effect of having a disability category on a youth's log-odds of appearing in juvenile court, and β_n represents additional covariates (e.g., gender, race/ethnicity) effects on the log-odds of court appearance in subsequent models.

Additional models that included individual disability categories were fit using the same logic as that in Equation 1. The first model included court involvement regressed on individual disability categories, followed by subsequent models that included additional sociodemographic covariates.

Results for the logistic regression analyses include the log-odds and adjusted relative risk (RR) using Zhang and Yu's (1998) odds ratio to relative risk equation. Changing log-odds to adjusted relative risk ratios is recommended when the prevalence of an outcome is greater than 10% in a population, as AOR may overestimate risk and is often misinterpreted (Robbins, Chao, & Fonseca, 2002; Zhang & Yu, 1998). The adjusted relative risk is obtained by doing the following: OR / [(1-P) + (P*OR)], where OR represents the odds ratio from the logistic regression, and P represents the percentage of the referent group who had the same outcome.

The question of whether youth with disabilities differed on the type of offenses committed compared to youth without a disability was answered using a multinomial logistic

regression, with the type of offense as the outcome and juvenile petty offense as the referent (Equation 2).

$$Offense_i = \alpha + \beta_1 X_1 + .. \beta_n X_n \quad (2)$$

Similar to the first research question, the first model was fit with disability status as the only predictor, of each of the offenses. Specifically in the first model, β_1 represented whether or not a youth had a disability, while in subsequent models, β_1 through β_n represented individual disability categories, race and ethnicity, and reading scores.

To investigate how the degree of offense varied between youth with disabilities and youth without a disability, logistic regression models were fit. As shown in Equation 3, disability status was included as the sole predictor, with subsequent equations including the sociodemographic block of predictors and lastly, the type of offense youth committed.

$$Degree_i = \alpha + \beta_1 X_1 + .. \beta_n X_n \quad (3)$$

Prior to analyses, cell size for each cross-tabulation of predictors and outcome were assessed to insure there were adequate numbers of youth in each cell. Following analyses, the Akaike Information Criterion (AIC) was used for assessing model fit.

Results

All results are discussed in reference to the adjusted relative risk ratio. Unless stated, the underlying coefficients of the relative risk was statistically significant at the $p < .05$ level. The tables provide the log-odd coefficients and error associated with each coefficient, as well as the Akaike Information Criterion (AIC), a statistic of model fit.

Research Question 1: YD Involvement in Court

The first set of analyses investigated whether YD were overrepresented in the juvenile court system. As shown in Table 2, YD were 1.39 times as likely to end up in the juvenile court system as youth without a disability prior to covariate adjustment. Following

the inclusion of youth demographic information (i.e., sex, race and ethnicity, and FRL status), YD were 1.07 times as likely to be involved in court as youth without a disability. Females were 0.55 times as likely to be involved in juvenile courts as males. Black (RR=1.60) and Native American (RR=2.02) youth were significantly more likely to be in juvenile court that White youth. Hispanic youth were 0.47 times as likely to go to juvenile court than White youth. In addition, youth who had received FRL at some point during their academic career were 2.08 times as likely to end up in the juvenile court system as youth who had not received FRL.

Including reading scores (MCA-R) reversed the representation of YD overall from parity with peers (RR=1.07), to slightly underrepresentation in the juvenile courts (RR=0.85). Aside from a similar reversal for Hispanic youth (RR=1.07 to RR=0.90), including reading scores did not significantly reduce disproportionality related to race and ethnicity or FRL status.

Table 2

Risk of Court Involvement for Youth with Disabilities

	B (E)	RR	B (E)	RR	B (E)	RR
YD	0.41† (0.01)	1.39	0.08† (0.01)	1.07	-0.19† (0.02)	0.85
Female			-0.67† (0.01)	0.55	-0.62† (0.01)	0.58
Race/Ethnicity						
Black			0.58† (0.02)	1.60	0.36† (0.02)	1.34
Hispanic			0.08† (0.02)	1.07	-0.12† (0.02)	0.90
Asian American			-0.85† (0.03)	0.47	-1.03† (0.03)	0.40
Native American			0.90† (0.03)	2.02	0.74† (0.03)	1.80
FRL			0.95† (0.01)	2.08	0.76† (0.01)	1.83
MCA-R					-0.41† (0.01)	0.70
Intercept	-1.59† (0.01)		-1.77† (0.01)		-1.66† (0.01)	
AIC	217,424		202,699		189,910	
N	230,760		230,760		220,988	

Note. B = Log-odds. E = Standard error. RR = Relative risk ratio calculated using Zhang and Yu's (1998) odds ratio to relative risk conversion. YD = Youth with an education-related disability. MCA-R: Minnesota Comprehensive Assessment of Reading.

†$p<.001$ **$p<.01$ *$p<.05$

The next set of analyses investigated how disability category was related to juvenile court involvement. As shown in Table 3, prior to covariate adjustment, youth with different disabilities had a heterogeneous risk of being involved in the juvenile courts. Youth with EBD (RR=2.85), OHI (RR=1.71) and SLD (RR=1.53) all had a significantly higher risk of court involvement than youth without a disability. Youth with ASD (RR=0.50), physical or sensory impairments (RR=0.50) and SLI (RR=0.41) were all significantly less likely to be in juvenile court. Youth with a section 504 plan (RR=0.88) and with DCD (RR=0.77) were slightly less likely to be involved in the juvenile courts than youth without a disability.

Controlling for race and ethnicity reduced the magnitude of overrepresentation for youth with EBD, OHI, and SLD (RR=2.59, 1.65, and 1.39, respectively). Youth who had been underrepresented remained the same, and youth with DCD were now underrepresented compared to peers without a disability (RR=0.67). With the exception of Asian American youth, who were underrepresented in the juvenile courts (RR=0.65), all other minorities were overrepresented compared to White youth (Black RR=2.03; Hispanic RR=1.50; Native American RR=2.40).

With the exception of youth with OHI and SLD, including youth reading scores (MCA-R) did not significantly impact the relationship between disability categories and juvenile court involvement. After including MCA-R scores, youth with OHI (RR=1.12) and SLD (RR=0.80) were no longer overrepresented in the juvenile courts. In addition, Hispanic youth (RR=1.15) were no longer overrepresented in the juvenile courts after controlling for MCA-R scores.

Table 3

Risk of Court Involvement by Individual Disability Category

	B (E)	RR	B (E)	RR	B (E)	RR
YD						
ASD	-0.79† (0.06)	0.50	-0.77† (0.06)	0.51	-1.04† (0.06)	0.40
DCD	-0.31† (0.06)	0.77	-0.47† (0.06)	0.67	-1.06† (0.10)	0.39
EBD	1.52† (0.03)	2.85	1.36† (0.03)	2.59	0.91† (0.03)	1.98
OHI	0.69† (0.03)	1.71	0.65† (0.03)	1.65	0.14† (0.03)	1.12
PhysSensory	-0.79† (0.08)	0.50	-0.83† (0.08)	0.48	-1.00† (0.09)	0.41
SLD	0.54† (0.02)	1.53	0.41† (0.02)	1.39	-0.27† (0.03)	0.80
SLI	-0.99† (0.06)	0.41	-1.00† (0.06)	0.41	-1.07† (0.06)	0.39
Section 504	-0.15† (0.04)	0.88	-0.11* (0.04)	0.91	-0.24† (0.04)	0.82
Race/Ethnicity						
Black			0.95† (0.02)	2.03	0.59† (0.02)	1.58
Hispanic			0.52† (0.02)	1.50	0.18† (0.02)	1.15
Asian American			-0.49† (0.03)	0.65	-0.75† (0.03)	0.52
Native American			1.22† (0.03)	2.40	0.94† (0.03)	2.02
MCA-R					-0.51† (0.01)	0.65
Intercept	-1.59† (0.01)		-1.73† (0.01)		-1.65† (0.01)	
AIC	213,215		208,132		193,427	
N	230,760		230,760		220,988	

Note. B = Log-odds. E = Standard error. RR = Relative risk ratio calculated using Zhang and Yu's (1998) odds ratio to relative risk conversion. PhysSensory = Physical and sensory impairments. MCA-R = Minnesota Comprehensive Assessment of Reading. Referent is White youth without a disability.

†$p<.001$ **$p<.01$ *$p<.05$

Research Question 2: Type of Offense

These analyses investigated whether YD committed different types of offenses than youth without a disability. Disaggregated categories were investigated since the previous analyses indicated that court involvement was heterogeneous and extant literature indicated that type of offense may vary by disability (Cheely et al., 2012). Due to low cell sizes across disabilities and offenses (Table 4), only Black and Hispanic race and ethnicity categories were included for covariate adjustment, at which point law violations at school were dropped from the analyses.

Crimes against persons. With the exception of youth on a section 504 plan, all youth with disability were at a higher risk of referral for committing a crime against a person (e.g., assault, theft) than youth without a disability. As shown in Table 5, youth with ASD (RR=5.55), DCD (RR=4.85) and EBD (RR=4.27) were over four times as likely to be referred for committing a person-related offense as a youth without a disability. Youth with OHI (RR=2.52) and SLI (RR=2.14) were both over two times as likely to commit a crime against a person. Youth with SLD (RR=1.98) and physical or sensory impairments (RR=1.74) were also at a higher risk of court involvement for crimes against a person than youth without a disability.

Adjusting for race and ethnicity did not impact the direction of the relationship between disability categories and crimes against persons (Table 6). Youth with ASD had the highest risk of committing a person-related offense (RR=6.56), while youth with a section 504 plan (RR=1.14) were at no greater risk of being referred for a person-related offense than youth without a disability. Both Black (RR=2.03) and Hispanic (RR=1.54) youth were at an increased risk of court referral for a crime against a person.

Table 4

Number of Youth Involved in Each Offense Category by Disability (N=41,812)

	Person		Property		Drug		Public Order		School		Other		Petty	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
ASD	87	26.85	52	16.05	18	5.56	74	22.84	4	1.23	41	12.65	48	14.81
DCD	67	20.00	93	27.76	9	2.69	67	20.00	3	0.90	35	10.45	61	18.21
EBD	553	17.72	740	23.72	185	5.93	759	24.33	30	0.96	332	10.64	521	16.70
OHI	282	13.19	447	20.91	213	9.96	338	15.81	34	1.59	375	17.54	449	21.00
PhysSensory	17	10.12	36	21.43	13	7.74	24	14.29	0	-	36	21.43	42	25.00
SLD	331	10.65	737	23.71	227	7.30	475	15.28	31	1.00	579	18.63	728	23.42
SLI	38	11.76	70	21.67	26	8.05	54	16.72	3	0.93	47	14.55	85	26.32
Section 504	48	7.08	91	13.42	89	13.13	64	9.44	11	1.62	215	31.71	160	23.60
No Disability	2,033	6.47	5,412	17.22	2,997	9.54	3,337	10.62	471	1.50	8,956	28.50	8215	26.14

Note. PhysSensory = Physical and sensory impairments. Percentages are row percentages, and reflect the proportion of cases that youth within a certain category (e.g., ASD) commit.

Crimes against property. With the exceptions of youth with physical or sensory impairments (RR=1.21) and youth with a section 504 plan (RR=0.80), youth with disabilities were more likely to commit property offenses than youth without a disability. Youth with DCD (RR=2.35) and EBD (RR=2.12) were over two times as likely to commit a property offense. Youth with SLD (RR=1.59), SLI (RR=1.56) and OHI (RR=1.49) were all about one and a half times more likely to be in court for a property-related offense than youth without a disability.

Including race and ethnicity did not alter the direction of overrepresentation between disability status and a youth's risk of being in court for a crime against property. Both Black (RR=1.96) and Hispanic (RR=1.35) youth were more likely to be in court for a property related offense than White youth.

Crimes against public order. Crimes against public order included obstruction of justice, social hosting, public nuisance, weapons offenses and Department of Natural Resources (DNR) violations. Youth with ASD (RR=3.32), EBD (RR=3.36) and DCD (RR=2.94) were all more likely to be in court for public order offenses than youth without a disability. Youth with OHI (RR=1.90), SLI (1.86), and SLD (RR=1.67) were also more likely to be in court for an offense related to public order than youth without a disability. Youth with physical or sensory impairments or a section 504 plan were in court for public order offenses at a rate similar to peers.

Including race and ethnicity in the model did not impact the direction or strength of the relationship between disability category and court appearance for public order offenses. Black (RR=2.06) and Hispanic (RR=1.37) youth were at a much greater risk of court appearance for public order violations than White youth.

Table 5

Type of Offenses Committed by Youth with Disabilities

	Person		Property		Public Order		Drug		School	
	B (E)	RR	B (E)	RR	B (E)	RR	B (E)	RR	B (E)	RR
Disability										
ASD	2.09† (0.15)	5.55	0.59† (0.18)	1.58	1.53† (0.16)	3.32	0.17 (0.26)	1.16		
DCD	1.89† (0.16)	4.85	1.19† (0.15)	2.35	1.34† (0.16)	2.94	-0.46 (0.33)	0.66		
EBD	1.71† (0.06)	4.27	1.02† (0.05)	2.12	1.54† (0.05)	3.36	0.24** (0.08)	1.24	0.57† (0.15)	1.75
OHI	1.03† (0.07)	2.52	0.50† (0.06)	1.49	0.76† (0.07)	1.90	0.39† (0.08)	1.42	0.54† (0.16)	1.70
PhysSensory	0.61* (0.26)	1.74	0.23 (0.21)	1.21	0.35 (0.24)	1.36	-0.27 (0.32)	0.78		
SLD	0.75† (0.07)	1.98	0.59† (0.05)	1.59	0.60† (0.06)	1.67	0.06 (0.07)	1.06	0.14 (0.15)	1.14
SLI	0.84† (0.19)	2.14	0.57† (0.15)	1.56	0.73† (0.16)	1.86	0.17 (0.21)	1.17		
Section 504	0.03 (0.16)	1.03	-0.27* (0.12)	0.80	-0.16 (0.14)	0.87	0.32** (0.12)	1.33	-0.12 (0.31)	0.89
Intercept	-2.14† (0.02)		-1.15† (0.02)		-1.63† (0.02)		-1.75† (0.02)		-3.42† (0.04)	
AIC	116,106									
N	41,812									

Note. B = Log-odds. SE = Standard error. RR = Relative risk ratio calculated using Zhang and Yu's (1998) odds ratio to relative risk conversion. PhysSensory = Physical and sensory impairments.

†p<.001 **p<.01 *p<.0

Drug law violations. Drug law violations included driving under the influence and use of controlled substances (e.g., marijuana, heroine, drugs that involved hypodermic needles). Only youth with OHI (RR=1.42) and a section 504 plan (RR=1.33) were at greater risk for court involvement related to drug use than youth without a disability.

With the exception of youth with EBD, the inclusion of race and ethnicity variables did not alter the overall relative risk of drug use violations for youth with disabilities. Youth with EBD (RR=1.26) were at greater risk of court appearance for drug offenses than youth without a disability. Youth with OHI (RR=1.39) and section 504 plans (RR=1.29) continued to be overrepresented. Black youth were significantly less likely to be in court for drug offenses than White youth (RR=0.58).

Law violations at school. Law violations at school consisted of person, drug, and weapons offenses that occurred on school premises. These offenses were exclusive from the same offenses that occurred outside of school premises. Youth with EBD (RR=1.75) and OHI (RR=1.70) were at greater risk of court appearance for law violations at school than youth without a disability. Due to small numbers of offenses in the school, the impact of specific disability categories with low numbers of offenses and race and ethnicity were not investigated.

Table 6

Type of Offense Committed with Disability and Race/Ethnicity

	Person		Property		Public Order		Drug	
	B (E)	RR	B (E)	RR	B (E)	RR	B (E)	RR
Disability								
ASD	2.24† (0.16)	6.56	0.69† (0.18)	1.74	1.67† (0.16)	3.27	0.17 (0.26)	1.16
DCD	1.79† (0.17)	4.75	1.03† (0.16)	2.22	1.13† (0.18)	2.37	-0.56 (0.37)	0.60
EBD	1.70† (0.06)	4.43	0.98† (0.06)	2.14	1.48† (0.06)	2.95	0.27**(0.09)	1.26
OHI	1.09† (0.08)	2.70	0.54† (0.06)	1.55	0.77† (0.07)	1.84	0.37† (0.08)	1.39
PhysSensory	0.73**(0.28)	1.97	0.39 (0.22)	1.38	0.37 (0.26)	1.36	-0.16 (0.34)	0.87
SLD	0.68† (0.07)	1.87	0.51† (0.05)	1.51	0.50† (0.06)	1.51	0.09 (0.08)	1.09
SLI	0.81† (0.21)	2.11	0.58† (0.16)	1.60	0.72† (0.18)	1.78	0.17 (0.23)	1.16
Section 504	0.14 (0.16)	1.14	-0.13 (0.12)	0.89	0.00 (0.14)	1.00	0.29* (0.12)	1.29
Race								
Black	0.77† (0.05)	2.03	0.85† (0.04)	1.96	0.92† (0.04)	2.06	-0.59† (0.07)	0.58
Hispanic	0.46† (0.07)	1.54	0.36† (0.05)	1.35	0.38† (0.06)	1.37	-0.06 (0.07)	0.95
Intercept	-2.36† (0.03)		-1.37† (0.02)		-1.86† (0.02)		-1.70† (0.02)	
AIC	97,955							
N	38,409							

Note. B = Log-odds. SE = Standard error. RR = Relative risk ratio calculated using Zhang and Yu's (1998) odds ratio to relative risk conversion. PhysSensory = Physical and sensory impairments.

†$p<.001$ **$p<.01$ *$p<.05$

Research Question 3: Degree of Offense

The last set of analyses investigated how disability status was related to a youth's degree of offense. The initial analysis (Table 7) indicated that overall, YD were 1.45 times more likely to receive a higher degree of offense when referred to court than youth without a disability. Disaggregating the disability categories provided evidence of heterogeneity in degree of offense referral. Youth with ASD (RR=2.72), DCD (RR=2.45) and EBD (RR=2.11) were all two times more likely to be referred for a higher degree of offense than youth without a disability. In addition, youth with OHI (RR=1.92) and SLD (RR=1.60) were also at a greater risk for receiving a higher degree of offense than youth without a disability.

After controlling for crimes against persons and property, and drug law violations, youth with disabilities were still at risk for receiving a higher degree of offense. Youth with ASD (RR=1.84), EBD (RR=1.57), OHI (RR=1.59) and SLD (RR=1.59) were all more likely to receive a higher degree of offense than a peer without a disability. Not surprisingly, youth who committed crimes against persons (RR=13.89), property (RR=4.44), or drug law violations (RR=2.57) were also more likely to receive a higher degree of offense than youth who committed status or traffic offenses.

Table 7

Degree of Offense by Disability Category and Type of Offense

	B (E)	RR	B (E)	RR	B (E)	RR
YD	0.66† (0.04)	1.45				
ASD			1.11† (0.15)	2.72	0.62† (0.17)	1.84
DCD			0.99† (0.16)	2.45		
EBD			0.82† (0.06)	2.11	0.46† (0.06)	1.57
OHI			0.71† (0.07)	1.92	0.47† (0.08)	1.59
PhysSensory			-0.10 (0.34)	0.91		
SLD			0.51† (0.07)	1.60	0.32† (0.07)	1.37
SLI			0.25 (0.21)	1.26		
Section 504			0.00 (0.16)	1.00		
Offense						
Person					2.75† (0.06)	13.89
Property					1.94† (0.06)	4.44
Drug					1.67† (0.07)	2.57
Intercept	-2.77† (0.02)		-2.77† (0.02)		-3.97† (0.05)	
AIC	21,180		21,136		16,701	
N	41,810		41,810		39,583	

Note. B = Log-odds. E = Standard error. RR = Adjusted relative risk ratio, calculated using Zhang and Yu's (1998) odds ratio to relative risk ratio conversion. PhysSensory = Physical and sensory impairment.

†p<.001 **p<.01 *p<.05

Discussion

The overrepresentation of YD in the juvenile justice system has been a concern for sometime (e.g., NCD, 2003). Given the literature on negative outcomes of involvement with the juvenile justice system (e.g., Aizer & Doyle, 2012; Mendel, 2011), and evidence that YD may experience worse outcomes in the juvenile justice system than youth without disabilities (Morris & Thompson, 2008; Zhang et al., 2011), establishing the prevalence of YD at various points of contact in the juvenile justice system (e.g., arrest, court, incarceration) is a first step towards ameliorating the intractable issue of bias in youthful sentencing and outcomes. This study sought to clarify whether YD were overrepresented in the juvenile court system, whether they committed different offenses, and whether county attorneys referred YD to court with a higher offense degree than youth without a disability.

Overrepresentation in Juvenile Courts

Youth with disabilities were more likely to be referred to court than their peers. However, overrepresentation of YD as an aggregate group was not robust to sociodemographic (i.e., race/ethnicity, FRL status) or reading achievement. Disaggregating the YD category into individual categories indicated that the lack of overrepresentation was due to variation across disability categories in a youth's risk of court appearance. Specifically, youth with EBD, OHI, and SLD were at a much greater risk of being referred to court than youth without a disability. Youth with ASD, physical or sensory impairments, and SLI had a relatively low risk of court appearance compared to youth without a disability. Overrepresentation was once again attenuated by sociodemographic and school factors. Once race and ethnicity were included, only youth with EBD, OHI, and SLD continued to be overrepresented in the juvenile courts. Youth with EBD were overrepresented when MCA-R scores were included, while youth with SLD switched from overrepresentation to

underrepresentation. These findings indicate that race and ethnicity cannot fully explain why youth with disabilities are overrepresented in the juvenile courts and that academic performance in reading is related to juvenile court representation. Given that many youth with SLD are identified due to concerns in reading it is not surprising that including reading performance on a standardized assessment inverted their risk of court involvement.

The findings of disproportionate involvement for YD both support and diverge from past literature. It has been established for some time that YD are overrepresented in incarcerated populations (Quinn et al., 2005) and a recent paper indicated a higher prevalence of YD in the juvenile courts (Aizer & Doyle, 2013). Study 1 found that after including demographic and school controls, the overrepresentation of YD as an aggregate group was reduced. Past literature has indicated that youth with EBD, SLD, and OHI are disproportionately incarcerated (Quinn et al., 2005). However, this study found that youth with DCD were at a lower risk of court involvement, while past research indicated they were more likely to be incarcerated (Quinn et al., 2005); this could indicate that their greater risk of incarceration is related to covariates included in analyses (e.g., race and ethnicity, academic performance), or the offense they commit and court outcome, rather than a high risk of court referral.

Additional research on the prevalence of YD prior to court appearance could help explain the overrepresentation of youth subgroups. Arrest rates and information about county attorneys propensity to refer youth to court or divert them from the juvenile justice system could provide valuable insight into why certain groups of YD are overrepresented in juvenile courts.

Types of Offenses Committed by YD

YDs were at greater risk of court referral for committing person, property, public order, and school offenses than youth without a disability. With the exception of youth with OHI or a section 504 plan, YD were referred to court for drug law violations at a rate similar to youth without a disability. This may be due to the types of youth who are categorized as OHI or have 504 plans (e.g., youth with ADHD who did or did not qualify for special education). Research suggests that youth with diagnoses of ADHD are at greater risk for experimenting with substances (e.g., alcohol, cigarettes, illicit drugs) and are more likely to persist and use these substances at higher rates and dosages (Sibley et al., 2014). In addition, youth on 504 plans or with OHI may not be as closely monitored as youth with disabilities that may require greater adult support, such as ASD, physical or sensory impairments, and DCD.

The findings regarding types of offenses youth with ASD committed are similar to past research. Past research on youth with a clinical diagnosis of ASD found that these youth were more likely to commit crimes against persons but were no more likely to be referred to court for drug law violations than youth without a disability (Cheely et al., 2011). Contrary to previous literature, this study found that youth with ASD were also more likely to commit crimes against property compared to youth without a disability. The divergence in these findings may be related to how the analyses were conducted. Cheely and colleagues (2011) used analysis of variance and investigated differences between groups, while these analyses investigated each offense in relation to the risk a youth would commit a status or traffic-related offense.

Regardless, the finding that YD are more likely to be referred for committing these types of offenses indicates that there should be greater supports in the schools. Youth's risk of committing person-related offenses could be ameliorated through direct skill instruction

in emotional regulation and social skills. In addition, use of evidence-based programs using cognitive behavioral therapy (CBT) could reduce youthful offending (Mendel, 2011).

Degree of Offense Referral

When youth are referred to juvenile court, a degree of severity is attached to the alleged offense. These degrees range from petty offenses to felony-level offenses, and reflect the severity of damages related to the offense. Overall, YD were just under one and a half times more likely to receive a higher degree of offense than youth without a disability. When disability categories were disaggregated, youth with ASD, DCD, and EBD were all over two times as likely to receive a higher level of offense than youth without a disability. When the type of offense committed was included in the model, the overrepresentation of certain disability categories was reduced, but youth with ASD, EBD, OHI, and SLD were still more likely to receive a higher degree of offense than youth without a disability. This indicates that though some of the higher degree referrals could be due to the higher risk of YD to commit crimes against persons (an offense that was far more likely to receive a higher degree of offense), these youth may still be perceived as more dangerous or as having caused more damage than youth without a disability (Cheely et al., 2012). Indeed, past research using vignettes and mock juries indicated that YD were more likely to be convicted and were perceived as more guilty than youth without a disability for charges such as assault and homicide (Najdowski, Bottoms, & Vargas, 2009).

Limitations and Future Directions

Although rigorous evaluation of the dataset and analyses was conducted, there are several limitations that should be noted. These data are based on extant data of youth in Minnesota during the 2008-2012 years, and reflect youth who were in fifth through eighth grade during the 2008-2009 academic year; they do not capture all youth who interacted with

the juvenile justice system during this time period. Including all youth during this time period could have allowed for greater exploration of the relationship and interactions between disability and other pertinent factors related to youthful offending such as previous behavioral and academic records and involvement with child protective services.

These analyses were restricted to the most egregious offense during a youth's first court appearance to reduce the risk that a more severe degree of referral would be due to prior court appearances. Because each offense had a separate outcome, they could be treated as a separate offense and court appearance. However, the number of offenses a youth was in court for could have affected the outcome. Because some evidence in the literature suggests that YD commit offenses at a higher rate than youth without a disability (Zhang et al., 2011), this could bias the degree of offense for YD during their first court appearance compared to youth without a disability.

One important limitation of the study includes the lack of county-level data that could link the location of offenses and the attorneys who referred youth to court. It is important to examine the extent of disproportionality in the juvenile courts at various levels of analysis (e.g., national, state, county, and referring attorney; Artiles et al., 2005; Artiles et al., 2008). This allows researchers to identify potential causal factors related to disproportionality and can reveal disproportionality at local levels that could otherwise be hidden by aggregation at the state or national level. For instance, some county attorneys may be more likely to refer YD to court than youth without a disability, while others may refer both groups of youth to court at similar rates. If the majority of county attorneys referred youth to court at similar rates and only state or national data were examined, issues surrounding disproportionality in a given county could go unnoticed.

It is important to note that due to how the analyses were conducted, youth who were not involved in the court system had a higher chance of being identified with a disability than youth who were involved. For youth involved in court, disability status was captured prior to court appearance to control for any confounding effect of court involvement and disability identification (e.g., missing school, drawing the attention of staff as a student in need of additional supports in the school). Youth who never appeared in court could be identified at any point during the study. This choice would have made significant findings more difficult to attain, by increasing the amount of YD in the general population. That is, youth with disabilities may have been more likely to be disproportionately above or below risk for various outcomes if the referent group did not have a larger opportunity to be identified for services.

Lastly, these findings do not indicate whether YD are more likely to commit different offenses or whether they are simply more likely to be caught, arrested, and referred for committing offenses similar to youth without a disability. The theoretical literature has been mixed on the causation of YD offending (NCD, 2003). Though the findings here could indicate support for the differential treatment theory, which states that YD are treated differently in the juvenile justice system, without arrest statistics and additional evidence of what happens prior to court (e.g., diversions to other programs), the cause of the heightened risk of YD in the juvenile courts is still a question for future studies to answer.

Despite these limitations, these findings make an important contribution to our understanding of the relationship between youth with education-related disabilities and the juvenile court system. Though the findings here are not causal, and raise additional questions about arrest rates, diversion programs, and where offenses occurred, there is now evidence that some youth with disabilities are at greater risk for court involvement. Prior to these

analyses, the majority of studies had focused on youth who had been incarcerated, or only included YD as an aggregate group; these analyses demonstrate that this assumption of homogeneity is not tenable given the heterogeneity in disability categories and juvenile court records.

Future studies should continue to investigate the risk of court involvement and outcomes for YD. Including geographical information (e.g., county or neighborhood) and data on referring attorneys could pinpoint areas where YD are a much higher risk of court appearance than youth without a disability. In addition, the outcome of court involvement should be investigated. Specifically, information regarding the type of adjudication (e.g., acquittal, conviction), and disposition, such as the length of time YD are incarcerated compared to their peers, would provide insight into whether disproportionality in correctional facilities is attributable to differential conviction and sentencing rates.

Implications for Policy and Practice

Currently states are required to track and report disproportionate contact with minority youth, but do not regularly collect information on whether youth at various points of the juvenile system have a disability. States should be required to track and report the number of youth who have an identified educational disability. These youth are at greater risk of being referred to the juvenile court system and according to past research (Quinn et al., 2005; Rutherford et al., 2002), are overrepresented in incarcerated populations. These youth are also more susceptible to negative outcomes than youth without a disability (Morris & Thompson, 2008), warranting closer monitoring of their contact with the juvenile justice system.

The offense analyses uncovered that youth with EBD and OHI were more likely to be referred to court for offenses committed in school than youth without a disability.

Though having a disability does not preclude reporting criminal offenses (Burrell & Warboys, 2000), schools should consider whether offenses that occur on the school premises are related to a manifestation of the youth's disability by conducting a manifestation determination. If a youth's offense is a manifestation of their disability, revising the youth's Individual Education Plan (IEP) and Behavior Intervention Plan (BIP) following a functional behavior assessment (FBA) could serve the youth through greater coordinated planning around what they need to be successful while avoiding the pejorative outcomes of involvement with the juvenile justice system.

The juvenile court system should ensure that youth, especially those with a disability, are not excluded from the educational system for longer than necessary. Youth that end up being incarcerated should have a revised IEP that includes transition services and goals for returning to the community, and a behavior intervention plan for how to manage the behavior of the youth while incarcerated.

Conclusion

These findings suggest that youth with disabilities are overrepresented in the juvenile court system, but that treating disability as an aggregate factor in studies of youthful offending is not appropriate. Youth with different disabilities have different relative risks of appearing in court, commit different offenses, and have different risks of the severity of the degree their offense receives. These results underscore the need for more research related to youth with disabilities in the juvenile justice system. The overrepresentation of these youth in the juvenile courts merits additional research into causative factors related to their relative risk and programs that could reduce overrepresentation.

Chapter 3

STUDY 2

Outcomes of Court Involvement for Youth with Education-related Disabilities

Abstract

Youth with disabilities (YD) are overrepresented in the juvenile justice system. However, how YD become overrepresented has not been adequately addressed in the literature. This study investigated how juvenile court sentencing and length of incarceration contribute to overrepresentation. Research questions that guided this study were: whether YD were more likely to receive a severe sentence compared to youth without a disability, and whether YD were more likely to be incarcerated for longer periods of time. Juvenile court records from 2008 to 2012 were linked with educational records to elucidate the relationship between disability, offending, and court outcomes for 41,812 youth. Logistic and linear regression analyses were used to address the research questions. YD were convicted at rates similar to youth without a disability. Contrary to previous literature, when YD were incarcerated they were not sentenced for longer periods of time than youth without a disability. Implications of the findings are discussed.

Keywords: Special education, disproportionality, juvenile court, adjudication, sentence length

Outcomes of Court Involvement for Youth with Education-related Disabilities

Over 1,058,500 youth move through the juvenile court system a year (National Center for Juvenile Justice [NCJJ], 2015). Though the mission of the juvenile justice system is for contact with youth to be rare, fair, and beneficial, disproportionate conviction rates for specific youth sub-populations have been a persistent concern for decades (NCD, 2003). One of these groups, youth with disabilities (YD), present a particular challenge to the juvenile justice system, as they are both more vulnerable and more likely to be involved in the juvenile courts (Study 1) and in correctional facilities (Quinn et al., 2005; Zhang et al., 2011). However, due to a lack of data on different points of contact in the juvenile justice system (e.g., arrest, referral to court, conviction) and how disability information is collected (parents, youth, intake workers) and measured (clinical or educational disability), little is known about this subpopulation. Discovering at which points of contact in the juvenile justice system YD are overrepresented is an important first step in understanding overrepresentation and discovering malleable factors that cause overrepresentation to occur.

Disproportionality in Juvenile Courts

Disproportionality in the juvenile courts can arise at several points. The Juvenile Justice and Delinquency Prevention Act of 1974 (42 U.S.C. 5601, *et seq.*), amended in 2002, required all states participating in the Formula Grants Program to measure Disproportionate Minority Contact (DMC) at nine points in the juvenile justice system. Four of these points are directly related to the juvenile courts, including diversion by the county attorney's office (that is, youth who never enter the court system), the court referral rate (sometimes referred to as petition to court), and conviction.

Juvenile court petitions. Court petitions involve the judgment by a county attorney on whether a given youth's offense should be dealt with through diversion programs or

through the juvenile court system. Being petitioned to court indicates that the county attorney has selected to take a more formal approach to processing a youth's alleged offense; this process carries a higher likelihood that the youth will have a juvenile court record. Court petitions vary considerably across different age, sex, and racial/ethnic groups, and also vary according to the type of offense a youth committed (Snyder & Sickmund, 1999). In 2013, 52% of White youth were petitioned to court when referred to county attorney's offices, while 61% of Black, 58% of Asian Americans, and 55% of Native American cases were petitioned (OJJDP, 2015). In terms of relative risk, that means that Black youth were 1.17 times more likely to be referred to court than White youth, while Asian Americans were 1.12, and Native Americans were 1.06 times as likely to be referred to court as White youth.

Referral rates for YD are not collected or reported in any systematic way by the government. Evidence from the scientific literature indicates that YD are overrepresented in the juvenile courts compared to their peers (Study 1; Zhang et al., 2011), however these estimates vary according to geographic region, how data are captured, and the inclusion of sociodemographic covariates. Using data linkages between juvenile court and educational records for first-time offenders, YD have been found to be 1.39 (Study 1) to 1.93 times (Aizer & Doyle, 2013) more likely to appear in court than youth without a disability. However, the findings of overrepresentation for first-time offenders with disabilities as a whole are not robust to sociodemographic controls such as race/ethnicity, sex, and free or reduced-priced lunch status (Study 1). When disability categories are disaggregated, the drop in the overrepresentation of YD is explained by heterogeneous representation in the juvenile court, with youth categorized as having an emotional behavioral disorder (EBD), other health impairment (OHI) and specific learning disability (SLD) overrepresented, while youth with autism spectrum disorders (ASD), developmental cognitive delay (DCD), physical or

sensory impairments, and speech-language impairments (SLI) underrepresented in juvenile court (Study 1). When investigating the total number of court referrals over a longer length of time (not just first-time offenders), YD have been found to be referred to court twice as often as youth without a disability (4.27 compared to 1.94 petitions, respectively; Zhang et al., 2011). The overrepresentation of YD in the juvenile court indicates that unless YD are significantly less likely to be convicted delinquent than their peers, they are at greater risk of being overrepresented in more restrictive placements within the juvenile justice system due to higher court referral rates.

Juvenile conviction. Approximately 323,300 cases, or 55% of those petitioned to juvenile court annually, are convicted (NCJJ, 2015). Like petition rates, conviction rates vary by race/ethnicity, geographic location, and by type of offense. Youth who commit crimes against property are the most likely to be convicted (34%), followed by crimes against public order (29%), person-related offenses (26%), and lastly by drug law violations (11%; NCJJ, 2015).

Nationally, 58% of petitioned White youth receive a conviction of delinquency, compared to 65% of Native American youth, 57% of Asian youth, and 51% of Black youth (NCJJ, 2015). In terms of relative risk, that means that Native American youth are 1.12 times more likely to receive a conviction of delinquency as White youth, while Asian American and Black youth are less likely than White youth to be convicted (0.98 and 0.87, respectively). However, these rates vary by geographic location; in Minnesota, every youth from a minority background is more likely to be convicted than White youth. Native American youth are 1.41 times as likely to be convicted, Hispanic youth 1.28 times as likely, Black youth 1.26 times as likely, and only Asian American youth are convicted at rates similar to White youth (1.02; MNOJP, 2012). When minority youth are counted as one group, Minnesota is 1.27

times more likely to determine minority youth are delinquent than White youth (MNOJP, 2012). Nationally, minority youth are 0.9 times as likely to be convicted as White youth (NCJJ, 2015).

Research on conviction rates for YD is equivocal and sparse. Two studies, both from South Carolina, using different methodology for disability identification, found both a higher and lower likelihood of conviction for YD compared to youth without a disability. The first study looked at repeat offending and not the risk of first time court petitioned conviction, and found that YD received a higher number of convictions than their peers (2.35 compared to 1.85; Zhang et al., 2011). However, repeat offenders may have different risks of conviction than first time offenders given states' rules and regulations around types of offenses, recommendations for petitioning to court, and suggestions for conviction. In addition, the study (Zhang et al., 2011) collected disability information from caseworker records on self-reported disability, and did not investigate the effect of various disabilities on offending due to a small sample size. The second study that included conviction outcomes focused solely on youth with ASD who were diagnosed by clinicians using abstracted records from local clinics and schools to make ASD diagnoses according to the Diagnostic and Statistical Manual – Fourth Edition, Text Revision. These cases were then linked with the juvenile court records and each youth with an ASD diagnosis was matched with three peers without an ASD diagnosis (Cheely et al., 2012). Youth with ASD were 1.56 times more likely to be diverted from court and 0.56 times as likely to be convicted (Cheely et al., 2012). Additional research on the conviction rates of YD may help explain the overrepresentation of these incarcerated youth.

Court dispositions. Following conviction of delinquency youth are either put on probation (64%), receive another sanction (12%), or incarcerated (24%; NCJJ, 2015). Most

literature focuses on incarcerated youth, as these youth are at the greatest risk of not completing high school (Aizer & Doyle, 2013; Hjalmarsson, 2008) and are more likely to recidivate than youth who receive a lesser disposition (Aizer & Doyle, 2013; Gatti et al., 2009). At the national level, Black youth are 1.17 times as likely to be incarcerated as White youth, while Native American and Asian American youth are 1.04 and 0.78 times as likely to be incarcerated as White youth (NCJJ, 2015). In Minnesota, Native American youth are the only ones more likely to be incarcerated than White youth (RR=1.31), while Black youth are 0.77 times as likely to be incarcerated, with Asian American (1.07) and Hispanic (0.91) youth incarcerated at rates similar to White youth (MNOJP, 2012).

The literature on court dispositions for YD is as sparse as the conviction literature. There is some evidence that YD are incarcerated at the same rate as youth without a disability, but when sentenced, are incarcerated for longer periods than peers without a disability (7.98 compared to 5.92 months, respectively; Zhang et al., 2011). However, previous research investigated the total number of placements that YD received compared to their peers, which could mask disparities that arise during first contact with the juvenile courts.

Impact of Court Outcomes on Youth Futures

Court involvement and the subsequent outcomes related to involvement have notable effects on youths' future life opportunities and relationships. Although there are mixed findings regarding some outcomes, the literature has consistently found that both court and correctional involvement are either unrelated to, or are negatively related to educational attainment (Aizer & Doyle, 2013; Hjalmarsson, 2008), including a 30-50% drop in graduation (Sweeten, 2006; Tanner, Davies, & O'Grady, 1999). In addition, youth involvement in the juvenile justice system is related to decreased employment opportunities

and wages (Kerley, Benson, Lee, & Cullen, 2004) that extend into adulthood, and these youth have an increased risk of committing additional crimes both as juveniles (Zhang et al., 2011) and as adults (Aizer & Doyle, 2013). In addition, youth who are involved in the juvenile justice system are 5.2 times as likely to later be involved in youth gangs and more likely to be involved with delinquent peers than same-age peers who were not involved in the juvenile justice system (Bernburg, Krohn, & River, 2006). The preponderance of evidence on outcomes related to involvement in the juvenile justice system necessitates research around the overrepresentation of YD in the juvenile courts, the last formal contact point prior to incarceration.

Present Study

The purpose of the present study was to investigate the risk YD would be convicted and if incarcerated, the length of time they received compared to their peers. This study added to the literature by using linked educational and juvenile justice records and investigating individual disability categories in relation to both conviction and incarceration. This linkage and disaggregation of disability categories had the advantage of not relying on student report of delinquency (e.g., Hjalmarsson, 2008) or juvenile justice staff to accurately identify youth disability categories (e.g., Zhang et al., 2011), and avoided the assumption that YD are a homogenous group. The following research questions guided this study:

1. Are YD more likely to receive a severe disposition than youth without a disability? It was hypothesized that YD will receive more severe dispositions than youth without a disability.
2. For youth who are convicted and incarcerated, are YD more likely to receive a longer sentence length than youth without a disability? It was hypothesized that YD would receive a longer sentence length than youth without a disability.

This study added to the literature by investigating the effect of salient factors on youth conviction and incarceration by investigating whether there is a difference between YD and their peers. Lastly, this research provided a more granular look at the data than other studies that have either relied on just one subset of disability category (e.g., Cheely et al., 2012; Gage et al., 2012) or aggregated all of the categories (e.g., Aizer & Doyle, 2013; Zhang et al., 2011).

Method

Data Sources and Procedures

Data in this study were provided by the Minnesota Linking Information for Kids (MinnLInK) project out of the Center for Advanced Studies in Child Welfare at the University of Minnesota. MinnLInK provided state-level administrative data from the Minnesota Department of Education and State Court Administrator's Office for all youth in Minnesota between 2008 to 2012. Each set of administrative records were collected by their respective departments and provided to MinnLInK for cross-systems research purposes.

Minnesota Department of Education (MDE). Youth information was collected from the 2008-09 to 2012-13 academic years. Data from MDE included gender, race and ethnicity, and special education status. Youth information was recorded by the school district responsible for mandatory testing, transcripts, and federal accountability standards (e.g., Child Find, Free and Appropriate Public Education, and Individualized Education Plans). Multiple schools provided information when youth attended multiple schools within a district concurrently, took Supplemental Online Learning courses, or were enrolled in a state approved alternative program.

State Court Administrators Offices (SCAO). Youth information from SCAO was collected between 2008 and 2012. Information was recorded by court clerks and provided to MinnLInK after court cases were closed. Youth information from SCAO used for the study

included the youth's offense, offense level, disposition, and if incarcerated, length of stay ordered by the court.

Matching. Matching youth across systems was completed in LinkPlus, a probabilistic matching program developed by the Centers for Disease Control (CDC). Following the probabilistic matching, MinnLInK staff hand-matched all youth who had a probabilistic match across systems that was greater than 10 percent. MinnLInK staff matched youth according to first name, middle initial, surname, and birthdate. Youth were captured as a true match if their first name, middle initial, surname, and birthdate were all matches; their first name, surname, and birthdate matched, but their middle name was misspelled, missing, included only an initial, or an initial for a different middle name; their middle initial, surname, and birthdate matched, but their first name was mismatched spelling or omitted letters; or their first name, middle initial, and birthdate matched, but their surname had mismatched spelling or omitted letters. Any other variations were considered a non-match. The overall matching rate between systems was 99.4%.

Analytic Sample

Youth who had complete information in MDE and had been involved in the juvenile court system were included in this study. After restricting the sample to those who were involved in both systems, youth who had an unknown disposition or who were in court for extradition-related cases (i.e., committing a crime in another state) were excluded, bringing the analytic sample to 41,812 youth.

Independent Variables

Youth with education-related disabilities (YD). Receipt of special education status, based on the special education evaluation status (SEES) variable in MARSS was used to determine whether a student had an education-related disability (YD). Students who had

qualified for and received special education services during a given year, who were qualified but had not received services (e.g., qualified at the end of a school year and scheduled for receipt the following year), were qualified but received services through another public agency, or had a Section 504 plan on record at any point during the four-year data collection window, were coded as having a disability. To ensure that juvenile justice system involvement did not result in disability identification, disability status was collected from the year immediately prior to court involvement for youth who were involved in the juvenile courts. Youth were not categorized as having a disability if they were never evaluated, were evaluated but did not qualify, were evaluated but parents denied services, or received early intervening services. Youth who did not qualify for special education services were used as the referent group in analyses.

Primary Disability. Primary disability categories are used by school districts to indicate which category best captures a youth's educational and functional needs. Secondary disability categories are not captured by MARSS, making each disability category exclusive (i.e., youth were only present in one category, and multiple disabilities were not accounted for). Due to low numbers of students in lower-incidence disabilities the traditional thirteen IDEA categories were reduced to the following categories: Developmental Cognitive Disability (DCD), Specific Learning Disability (SLD), Emotional-Behavioral Disability (EBD), Autism Spectrum Disorder (ASD), Sensory and physical impairments ([SensPhys]; i.e., physically impaired, deaf-hard of hearing, visually impaired, deaf-blind, traumatic brain injury, and severely multiply-impaired), speech-language impairments (SLI), and other health impairments (OHI; which includes youth with attention-deficit hyperactive disorder).

Race and ethnicity. Race and ethnicity included whether a student was Native American, Asian American, Hispanic, Black, not of Hispanic origin, and White, not of

Hispanic origin. Race and ethnicity was obtained by either youth report, parent/guardian report when youth could not or would not report race and ethnicity, or by district counts of students if neither of the previous persons reported race and ethnicity. White, non-Hispanic youth were used as the referent group when race and ethnicity were included in analyses.

Offense. Offenses were coded from an adaptation of Cheely and colleagues (2012) research. Youthful offenses were captured by the following exclusive categories: crimes against person (i.e., the offense involved an act against another person such as an assault, robbery, sexual offense, etc.), crimes against property (e.g., trespassing, vandalism), drug law violations (e.g., use of controlled substances such as heroine, or driving under the influence), crimes against public order (e.g., obstruction of justice, hosting a party, offenses involving weapons), and a combined status and traffic offenses category that captured any petty offenses (e.g., underage smoking, outside past curfew) as well as minor traffic-related offenses that had court dates. The latter category was used as the referent in analyses. The most egregious offense a youth committed during their first court appearance was used in analyses to control for repeat offending and varying numbers of committed offenses.

Outcome Variables

Disposition. Dispositions in the juvenile court system are synonymous with convictions in the adult criminal system. In the SCAO dataset, youth were recorded as being dismissed or acquitted, acquitted due to mental illness or deficiency, convicted (guilty), or certified to stand trial in the adult court system. For analytic purposes, youth with an unknown disposition (N=896) were dropped from the study and dispositional outcomes were reduced to a dichotomous outcome, with any type of acquittal or dismissal as the referent, and conviction of delinquency as the outcome of interest.

Length of stay. The length of stay was recorded as the number of days a youth was incarcerated. Previous research (e.g., Zhang et al., 2011) employed the number of months a youth was incarcerated; days were selected for their greater precision in capturing a youth's sentence.

Data Analysis

Logistic and linear regression models were employed to address the research questions. To answer the research question about differences in disposition outcomes for YD compared to youth without a disability, logistic regression was used to construct several models that built upon one another until all stated variables were included. The first model included disability status as a predictor of dispositional outcome, with dismissal as the referent outcome. Following the first models with disability status or individual disability categories as the only predictor, two additional models were fit, one with race and ethnicity covariates, and a second that included type of offense, but not race or ethnicity. Due to low cell counts in cross-tabulations of the data, these models were assessed separately.

$$Disp_i = \alpha + \beta_1 X_i + .. \beta_n X_n + \epsilon \quad (4)$$

The outcome in Equation 4 represents the youth's disposition with dismissal as the referent outcome, α represents the average log odds of conviction of delinquency contingent on the other predictors, β_1 through β_n represent additional covariates in subsequent models, and ε represents variance not otherwise captured by the model.

Linear regression was used to answer the question about whether youth with education-related disabilities who were sentenced to correctional facilities were incarcerated for longer periods of time than youth without a disability. Due to very low numbers of youth sentenced to incarceration in the sample (N=511), the linear regression models only

evaluated the impact of aggregate disability and the impact of select individual categories with sufficient numbers on sentence length (Equation 5).

$$Length_i = \alpha + \beta_1 X_i + .. \beta_n X_n + \epsilon \quad (5)$$

Where the outcome is the number of days a youth was incarcerated by a court judge, the intercept represents the average days a youth without a disability was incarcerated, and β_n represents whether the youth had a disability, or in a subsequent model, the disability category.

Prior to analyses, the data were assessed using cross-tabulation tables that included all possible predictors and the outcome of interest to ensure adequate cell sizes for each analysis. Following analysis, models were compared using the Akaike Information Criterion (AIC) to assess model fit.

Results

Conviction Rates

As shown in Table 8, YD received delinquency convictions at rates consistent with peers (RR=0.99). Though disaggregating youth by disability category improved model fit (AIC=56,147 compared to AIC=56,170), all disability categories received delinquency convictions at rates similar to youth without a disability. Youth with ASD were trending towards being at a lower risk of conviction (RR=0.80), while youth with SLI were trending towards having a higher risk of conviction (RR=1.17). However, neither of these groups of youth met the criteria for significant risk above (RR=1.25) or below (RR=0.75) that of youth without a disability.

With the exception of youth with EBD and SLI, including person, property, drug, and public order offenses reduced the discrepancy between most YD categories and their peers who did not have a disability. Though youth with EBD (RR=1.12) and SLI (RR=1.20)

became slightly more likely to be convicted after including the offense covariates, neither group was significantly overrepresented compared to youth without a disability. Youth who committed crimes against persons were the least likely to be convicted (RR=0.52), or alternately $0.52^{-1} = 1.92$ times more likely to be dismissed or acquitted. Youth who committed crimes against property, drug law violations, and public order law violations received delinquency convictions at rates similar to status and traffic offenses.

Table 8

Delinquency Outcomes for Youth with Disabilities

	B (E)	RR	B (E)	RR	B (E)	RR
YD	-0.01 (0.02)	0.99				
ASD			-0.37** (0.12)	0.80	-0.20 (0.12)	0.90
DCD			-0.23* (0.11)	0.87	-0.08 (0.12)	0.96
EBD			0.10** (0.04)	1.06	0.24† (0.04)	1.12
OHI			0.02 (0.05)	1.01	0.10* (0.05)	1.05
PhysSensory			-0.04 (0.16)	0.98	-0.01 (0.16)	1.00
SLD			-0.08* (0.04)	0.95	-0.03 (0.04)	0.98
SLI			0.30** (0.11)	1.17	0.39† (0.12)	1.20
Section 504			-0.13 (0.08)	0.93	-0.12 (0.08)	0.94
Offense						
Person					-1.03† (0.04)	0.52
Property					-0.29† (0.03)	0.85
Drug					-0.22† (0.04)	0.89
Public Order					-0.13† (0.03)	0.93
Intercept	-0.23† (0.01)		-0.23† (0.01)		-0.08† (0.01)	
AIC	56,170		56,147		54,510	
N	40,916		40,916		40,194	

Note. B = Log-odds. E = Standard error. RR = Relative risk ratio calculated using Zhang & Yu's (1998) log-odds to relative risk conversion.

†$p<.001$ **$p<.01$ *$p<.05$

Length of Incarceration

On average, all youth who were incarcerated were sentenced for 65.67 days (Table 9). YD were incarcerated for the same amount of time during their first court appearance as peers without a disability (B=-1.19, n.s.). Due to small number of YD sentenced to incarceration in Minnesota, only youth with EBD, OHI, and SLD were assessed as individual categories. Youth with these three categories were included because they had sufficient numbers to be included separately. Each of these categories were incarcerated for the same length of time as youth without disabilities. Youth with EBD (B=2.36, n.s.), OHI (B=13.55, n.s.) and SLD (B=-6.02, n.s.) each received sentences on parity with peers who did not have a disability.

Table 9

Length of Time Youth with Disabilities were Sentenced to Incarceration

	B	E	B	E
YD	-1.19	7.82		
EBD			2.36	13.81
OHI			13.55	17.53
SLD			-6.02	13.00
Intercept	65.67†	3.92	65.67†	4.00
R^2	0.00		0.00	
N	511		479	

†p<.001 **p<.01 *p<.05

Discussion

This study investigated whether YD were more likely to receive a conviction in juvenile court and whether YD who were incarcerated would be sentenced for longer periods of time than peers without a disability. Contrary to previous literature, this study found no difference in conviction rates or sentencing length between YD and youth without a disability.

Contrary to previous literature, this study found that YD received convictions at rates similar to their peers. Given past research on higher conviction rates of YD over time (Zhang et al., 2011) and their overrepresentation in correctional facilities (Quinn et al., 2005), these results were surprising. However, past research has investigated the overall number of convictions that youth received over the entire period of time that youth could be involved in the juvenile justice system (e.g., ages 10-19 in their study). This study used conviction rates from the first time a youth was referred to court over a four-year period, and did not include subsequent offenses and convictions, which could increase the chances a youth would receive a conviction. Though YD are not significantly more likely to be convicted during their first offense than their peers, the disparities that arise at the point of court referral (Study 1), and their increased chances of recidivating (Zhang et al., 2011), continue to put them at a greater risk for experiencing juvenile incarceration compared to their peers.

In addition, YD were incarcerated for the same length of time as youth without a disability. These results may have varied from past findings due to geographical location (South Carolina compared to Minnesota, respectively), the longer timespan used in past research, or how disability was measured (educational records compared to self-report or juvenile justice caseworker indications). In addition, youth who were incarcerated in Minnesota all went to county-level jails, and did not include youth in treatment centers or

group homes, which may have included different lengths of stay than the traditional detention centers. Although YD were not incarcerated for longer periods of time than their peers, given that the incarceration time was typically 66 days, they were still missing a large portion of their time in school. Research on chronic absenteeism (defined as being absent 10% or more of the school year, roughly 18-20 days) may provide insight into the effect of juvenile incarceration. Youth who are chronically absent are less likely to read proficiently (Lamdin, 1996), and have a decreased likelihood of completing school (Balfanz & Byrnes, 2013). The issue of missing school for incarceration, especially when the literature on the effects of youthful incarceration is so bleak, is a pressing concern.

Theoretical Implications

These findings have implications for both the differential treatment and susceptibility theories. The differential treatment theory has two hypotheses related to this study: (1) YD are at a greater risk of conviction than their peers; and (2) YD are more likely to receive a severe disposition from the juvenile courts than youth without a disability (Brier, 1989; Dunivant, 1982). The findings in this study do not support the differential treatment theory, as YD were found to be convicted at rates similar to their peers, and were incarcerated for similar lengths of time as youth without a disability. However, these findings only look at two of the nine DMC contact points, and cannot speak to differential treatment at other points of contact with law officials such as police officers, county attorneys, and their staff. That is, differential processing may simply occur prior to conviction.

The lack of disproportionate convictions and dispositional outcomes similar to peers without disabilities may support the susceptibility theory. The overrepresentation of YD in the juvenile courts (Study 1) and correctional facilities (Quinn et al., 2005) could be explained by a higher rate of offending by YD than their peers. Previous research on the higher

recidivism rate of YD (Zhang et al., 2011) found higher longitudinal conviction rates. Though the article did not address the theory of YD offending, the results may reflect that YD end up in correctional facilities because of an accumulation of offenses during adolescence. Regardless, neither the susceptibility nor the differential treatment theories take into account the multifaceted factors that lead to youthful offending.

When investigating youth with learning disabilities in the juvenile justice system, Brier (1989) concluded by stating that a multifactorial explanation of offending and the overrepresentation of YD in the juvenile justice system was more appropriate. For example, though YD are more likely to end up in the juvenile courts than their peers (Aizer & Doyle, 2013; Study 1), youth who come from families where a parent has been incarcerated (Hoeve et al., 2009), or there is physical, sexual, or alcohol abuse (Dembo et al., 2000), are also more likely to offend. Indeed, a combination of environmental factors, susceptibility to commit offenses (e.g., suggestibility, lack of inhibition and foresight), and differential treatment at various contact points with the juvenile justice system could all contribute to the higher than expected number of YD in the juvenile justice system.

Limitations and Future Directions

This study has several limitations. Only juvenile court records that were closed between 2008-2012 were included in these analyses. Consequently, these data represent outcomes related to completed court cases at the time of data collection and may not represent all court cases in Minnesota. The conviction rates in this study only represent convictions of delinquency that resulted from the most egregious offense a youth committed during their first court referral. Some youth were referred to court for committing multiple offenses and received separate conviction outcomes for each offense, and may have recidivated during the data collection period. Therefore, these results do not reflect the total

conviction rate for youth during this time period, and do not take into account the higher recidivism rate of YD (Zhang et al., 2011), which could result in different conviction outcomes given higher offense rates. In addition, this study only investigated disproportionality in conviction and sentencing at the state-level, which may conceal disproportionality at the county-level, where juvenile court cases are brought forward. Lastly, the incarceration analyses had a much smaller sample size than prior research (e.g., Zhang et al., 2011; Quinn et al., 2005) and do not include youth who were detained but had not gone to court and had their case closed.

Future research should include all offenses that a youth is referred to court for across multiple court occasions to account for both the difference in quantity and quality (i.e., types of offense) of juvenile offending and their concomitant outcomes. This would provide information about whether YD are more likely to receive a conviction of delinquency over time due to either the volume of offenses, court appearance, or some combination of the two. Because minority youth are at greater risk of being convicted and may be incarcerated at higher rates than White youth (OJJDP, 2015), and minority youth are more likely to be identified with a disability (Donovan & Cross, 2002; Dunn, 1968; Sullivan & Artiles, 2011), future research should investigate the relationship between these variables and their effect on conviction and length of sentencing. Lastly, this research should be replicated at multiple levels, including county, state, and national levels. Investigating and understanding disproportionality at multiple levels is an important first step to understanding causative factors related to disproportionality (Bollmer et al., 2007). Disproportionate court outcomes at the county level may be masked by state aggregation, and because both disability identification criteria and juvenile court laws vary from state to state, disproportionality may vary across states. However, understanding disproportionality at these various levels can

provide both a baseline for measuring future interventions, and allow for the manipulation of malleable factors at various levels (e.g., county attorney training, state laws, federal policy).

Implications for Policy and Practice

Though disproportionate conviction and sentencing outcomes were not found in this study, past research (e.g., Aizer & Doyle, 2013; Zhang et al., 2011) has found YD to be overrepresented in the juvenile justice system. States and counties should be required to report information about contact with YD similar to the requirements in Disproportionate Minority Contact, which require following youth from arrest through incarceration at nine contact points. In addition, this study found that youth who were incarcerated were sentenced for an average of 66 days, a significant period of time out of school. Based on findings from past research on the pejorative impact of long-term removal from the school setting (Hjalmarsson, 2008), juvenile courts should only incarcerate youth for extended lengths of time during non-school times (e.g., weekends, summer breaks). Additionally, correctional facilities should have modular educational and behavioral programs so that incarcerated youth do not fall behind academically while incarcerated. Evidence-based reading programs in correctional facilities have been shown to significantly improve reading skills for incarcerated youth and decrease future recidivism compared to youth not receiving specialized instruction (Keith & McCray, 2002). Unfortunately, there is a gap between the amount of available evidence-based practices and their employment in the juvenile justice system (Minnesota Department of Corrections, 2008). Lastly, staff in correctional facilities should work closely with a youth's school to ensure a continuation of services across systems, including continuation of the youth's IEP or 504 plan and coordinated transition programming back into the youth's school system.

Conclusion

This research investigated whether youth with disabilities were disproportionately convicted and incarcerated for longer periods of time than youth without a disability. Contrary to previous literature, no disproportionality was found in either conviction or length of sentence. These findings underscore the need for more research regarding youth with disabilities and the juvenile justice system. Additional research that investigates the influence of geography, socioeconomic status, race and ethnicity, and juvenile justice contact prior to court involvement and conviction should be conducted to replicate and extend this research.

Chapter 4

INTEGRATED DISCUSSION

This project addressed the call of NCD (2003) to study the risk of juvenile justice involvement for youth with disabilities. Though past research has covered the overrepresentation of YD who were incarcerated (Quinn et al., 2005), relatively few studies have investigated YD in the juvenile courts (for exceptions, see Cheely et al., 2012; Zhang et al., 2011), and previous studies have not investigated the prevalence of youth with various categories of disability in the juvenile courts. This project, based on juvenile court records from 2008 through 2012 linked with educational records in Minnesota, endeavored to examine whether YD were at greater risk of contact with the juvenile courts than their peers. The studies within sought to establish a basic knowledge of the risk of YD offending compared to youth without a disability and facilitate a discussion on what should be done to address these disparities. The individual studies, implications, and steps to address disproportionality in the juvenile justice system are discussed below.

Study 1

Study 1 provided valuable insights into involvement with the juvenile justice system for YD and underscored the need for further research in the area of court contact, type of offense, and degree of referral that youth receive when they enter the juvenile courts. The results revealed three main themes in court involvement for YD: The risk of court involvement for YD is heterogeneous and related to their disability category; YD are more likely to end up in court for delinquent offenses than their peers; and YD are more likely to be referred to court with a higher degree of offense than youth without a disability.

Disability categories need to be disaggregated for research on the juvenile justice system. This study demonstrated that the relationship between juvenile court involvement varies by disability category, calling into question the validity of the differential processing theory. Specifically, the findings from this study indicate that differential processing could be

protective for some YD, such as those with ASD, DCD, SLI, and physical or sensory impairments. These youth were found to have a decreased risk of court involvement compared to youth without a disability. In addition, youth with SLD who had average reading scores were no longer more likely to be involved in the juvenile court system than youth without a disability; this drop in overrepresentation and the underrepresentation of the aforementioned disability categories indicated that the differential processing theory should be applied with caution to YD involvement in juvenile justice. Treating these youth as an aggregate group may mask inequalities in juvenile processing and obfuscate future efforts to reduce disparities. The finding that some youth with disabilities were underrepresented could be used to investigate what mechanisms are in place, or operate differently, to allow these youth to remain outside of the juvenile justice system. For example, the authors of a study on juvenile justice involvement for youth with ASD suggested that these youth may be less likely to end up in court due to increased parental monitoring (Cheely et al., 2012).

The finding that YD were more likely to be referred for person, property, public order, and school offenses than youth without a disability, and were more likely to be referred to court with a higher degree of severity, has implications for future work elucidating the theoretical underpinnings of youthful offending perpetrated by YD. The varying nature of offenses and past literature on the higher number of overall court appearance for YD across multiple years (Zhang et al., 2011) could indicate support for the susceptibility theory of youthful offending. However, without knowing about arrest rates or contact prior to court, it is difficult to ascertain whether these cases are representative of YD offending prior to court appearance.

In addition, after controlling for the type of offense committed by YD, youth with ASD, EBD, OHI, and SLD were more likely to receive a higher degree of referral than

youth without a disability. These findings could indicate support for the differential treatment theory at the point of degree of referral. Youth who receive a higher degree of referral may be viewed as more dangerous and even if not incarcerated, may receive longer periods of monitoring and strict probation options, which could increase their risk of reoffending (Mendel, 2011). Future research should elaborate on this, investigating the descriptions of the criminal offenses and including information about the county attorneys to see if specific county attorneys are more likely to refer YD with a higher degree than youth without a disability.

Study 2

Study 2 provided insight into how YD who were involved in the court system move through conviction and their subsequent disposition. Prior research on conviction and incarceration (e.g., Zhang et al., 2011) was not able to differentiate by disability category and provided cumulative risks of incarceration; this research investigated first-time court referrals and their related outcomes. The study found that YD were convicted at rates similar to youth without a disability and incarcerated for the same length of time as their peers. These findings were in contrast to previous research that found YD were more (Zhang et al., 2011) and less likely (Cheely et al., 2012) to be convicted than their peers, and were incarcerated for longer periods of time than youth without a disability (Zhang et al., 2011). It is important to note that past research focused on convictions that youth received over the entire period of time that they were eligible to become involved in the juvenile justice system (e.g., Zhang et al., 2011) or investigated repeated offenses for a given demographic of students (e.g., ASD; Cheely et al., 2012), and did not focus on first-time offenders.

These findings introduced another source of variation in the differential processing theory. Specifically, YD were not more likely to be convicted of an offense than youth

without a disability, something that differential processing would predict. In addition, these findings indicated that the disparities found in correctional facilities (Quinn et al., 2005) occur prior to conviction in the juvenile courts. Future research and intervention need to focus on juvenile justice involvement prior to conviction and investigate the role of different types of offending on YD's risk of court involvement.

Recommendations for Reducing Disparity

The results of these findings echo Brier's (1989) call for a multifactorial explanation of offending. YD are overrepresented in the juvenile courts, commit different offenses than youth without a disability, and are not convicted or incarcerated at rates higher than their peers. These results indicate a need for three points of assessment and action: assessment that identifies disparities, and prevention and intervention programs that use the assessment information to target areas of greatest need and measure their success based on feedback from assessment of the overrepresentation of YD in juvenile justice. Suggestions on how to reduce disparities in the overrepresentation of YD in the juvenile justice system will be addressed through the adaptation of efforts targeted at reducing DMC.

Assessment

In order to properly address disparate contact of YD in the juvenile justice system, data collection that accurately assesses the issue needs to be accessible, accurate, and consistently collected. Without this, the findings in this project indicate that the overrepresentation of YD in the juvenile court system could persist, as there is no consistent mechanism for assessing their representation. As part of this assessment, states should be required to set goals and reduce disparities to explicitly legislated benchmarks. Data needs to be collected at every decision point of the juvenile justice system, from arrest, through diversions to other systems or programs and into incarceration and release. At this point,

diversion data and information at the county attorney level is missing from data collection points for DMC (MNOJP, 2012) and there is no requirement to collect data or intervene for YD who are disproportionately represented in the juvenile justice system.

One of the main points of critique of current DMC legislation is that states are required to "address" disproportionate minority contact, but there is no further criteria related to whether states are appropriately addressing overrepresentation (MNOJP, 2012). Consistent standards that discuss what represents overrepresentation and what constitutes reducing overrepresentation for YD would help policy makers and practitioners assess the efficacy of intervention and prevention efforts. By collecting data consistently and determining both what constitutes disproportionate contact and what constitutes progress, states could identify key decision points that contribute to the overrepresentation of YD in the juvenile justice system and target those contact points. For instance, Study 2 found that during their first court appearance YD were not more likely to be convicted than youth without a disability, which indicated that the overrepresentation of YD in correctional facilities may come from systematic issues prior to conviction.

Prevention

Preventing juvenile justice involvement has benefits at both the adolescent and societal levels. Youth who are diverted from juvenile justice involvement have better academic (Hjalmarsson, 2008), economic (Kerley et al., 2004), and future offending (Aizer & Doyle, 2013) outcomes than youth who are involved with juvenile justice. Within schools, reviewing and adjusting a student's behavior intervention plan (BIP) during annual individualized education plan (IEP) meetings could ensure that both IEP goals and BIP plans are aligned to best serve the student and reduce offending through direct instruction in emotional regulation and social skills, and creating structured decisions for how staff should

react to student behaviors. Concurrently, school staff should be provided training in de-escalation strategies and develop plans for how to safely help a youth calm down so that police are not required to intervene.

At the community, state, and national level, legislation and policy changes can be enacted to alter disproportionate contact of YD. States that have focused on funding diversion and rehabilitation programs within counties while requiring that the county pay the full cost of incarcerating a youth have seen reductions in juvenile incarceration (Mendel, 2011). In addition, though responsibility for tracking and assessing the effectiveness of preventative programs for juvenile justice involvement should be the sole responsibility of one government entity to ensure consistent data collection and methods of analysis, funding should be flexible, allowing for youth to transfer between systems that are most adapted to their care. This would allow for diversion programs to move youth arrested for drug law violations into chemical dependency or dual dependency and psychological care programs.

Intervention Efforts

The need for appropriately targeted intervention in the juvenile justice system is evidenced by the number of groups that have produced models for intervening with youthful offenders, including the NCJJ's Blueprints for Violence Prevention, the Substance Abuse and Mental Health Services Administration's National Registry of Evidence-based Programs and Practices, and OJJDP's Model Programs Guide. However, within these guidelines and program listings is the implicit assumption that effectiveness rests on following a specific model program, which does not reflect how the majority of intervention efforts in juvenile justice are carried out (Lipsey, 2009).

A meta-analysis of intervention philosophies, including: surveillance, deterrence, discipline, restorative, counseling, skill building, and multiple services, found that with mixed

results, certain intervention philosophies were more effective at reducing recidivism. After controlling for youth delinquency risk, the level of supervision (i.e., no supervision to incarceration), and the quality of the research study, interventions that had counseling, skill building, multiple services, or restorative justice foci were the most effective at reducing recidivism (Lipsey, 2009). Interventions focused on deterrence and discipline were the only two that consistently increased the risk of recidivism. Additional analyses indicated that some interventions within the over-arching categories were more effective than others at reducing recidivism, with cognitive-behavioral programs (-26% reduction in recidivism), behavioral skill building (-22%), group counseling (-22%), mentoring (-21%), and case management (-20%) all reducing recidivism by 20% or more over controls (Lipsey, 2009). However, the effectiveness of interventions primarily relied on the quality of implementation, with interventions implemented with greater fidelity producing the largest reduction in future recidivism (Lipsey, 2009). Evidence-based interventions are necessary but insufficient in reducing recidivism.

The majority of interventions studied in Lipsey's (2009) meta-analysis were not name-brand interventions. There are both advantages and drawbacks to this finding given that name brand interventions can be more expensive than generic interventions, but name brand interventions may also provide tools to increase fidelity that generic interventions lack. A previous study by Lipsey (1999) investigating the same database of studies found that the average recidivism in various programs was half that of research and demonstration programs, which are typically implemented with higher fidelity due to the additional scrutiny introduced by university researchers and staff developing a program. Therefore, it is crucial that interventions within the juvenile justice system focus on fidelity of implementation, and

provide ample opportunity for staff development and formative feedback on their performance implementing interventions.

Given the findings of this research, and the aforementioned meta-analysis and guidelines from national organizations, interventions focused on youthful offending should be funded through state incentive programs that prioritize the provision of evidence-based rehabilitative services that are implemented with fidelity. In addition, states should remove funding for youthful incarceration except in the most egregious cases (e.g., homicide; Mendel, 2011).

Conclusion

Youth with disabilities are overrepresented in the juvenile courts and in the incarcerated population. However, variation in risk of court appearance across disability categories indicates that these youth should not be treated as a homogenous group. In addition, these youth were no more likely to be convicted or spend a longer period of time incarcerated then youth without a disability. These findings indicate that disparities in incarceration for YD may occur prior to conviction, and could be the result of higher arrest rates or juvenile court referral. Due to the pejorative outcomes associated with juvenile justice involvement, legislation and policy changes should be implemented to address this group's overrepresentation in juvenile justice, starting with adequately tracking disproportionate contact similar to requirements set forth for reducing minority youth involvement. The only way that the overrepresentation of YD will be reduced, is through comprehensive multi-systemic change, starting with the recognition that YD are overrepresented in the juvenile justice system, and that aside from a few piecemeal studies in the academic literature, relatively little attention is paid to this group of youth.

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Appendix

List of Commonly Used Terms in Juvenile Justice

Term	Definition
Arrest	Law enforcement officers apprehend, stop, or contact youth whom they suspect committed a delinquent act.
Referral/Petition to Court	A youth is referred to court for legal processing by a county attorney and received by a juvenile or family court.
Diversion	Youth who are handled without filing formal charges or a court petition. Youth may receive a diversionary agreement that includes community service or payment of a fine.
Detention	Youth held in secure detention facilities at some point during court processing of delinquency cases (i.e., prior to disposition). In some jurisdictions, the detention population may also include youth held in secure detention to await placement following a court disposition. Detention does not include youth held in shelters, group homes, or other non-correctional facilities.
Conviction	Youth are judged or found to be delinquent during conviction hearings in juvenile court. Though the term used in juvenile justice is 'adjudicated' conviction was used to make the manuscript more accessible to education audiences. It is a formal legal finding of responsibility.
Disposition	Disposition hearings follow conviction, and include the sanctions imposed on a youthful offender. Dispositions may include probation, incarceration, community service, or other sanctions.
Probation	Probation cases are those in which a youth is placed on formal or court-ordered supervision following a juvenile court disposition. Note: Youth on probation under voluntary agreements without conviction are not counted here; they are part of the diverted population instead.
Incarceration	Youth who are sentenced to locked and guarded facilities, such as a jail. Youth in group homes, shelters, or mental health treatment facilities are not included.
Youth with Education-Related Disabilities (YD)	Youth with education-related disabilities (YD) are those who qualified under either the Individuals with Disabilities Education Act (IDEA) or Americans with Disabilities Act (ADA) to receive special education services or accommodations, respectively. At times the manuscript refers to youth who receive special education. This term is used to signify that youth who receive accommodations under section 504 of ADA are not included in the analyses (typically, other studies).

Terms adapted from Feyerherm, Snyder, & Villarruel (2009).